Aware

Aware is issued by the National Oceanic and Atmospheric Administration to keep communications lines open within the Agency and with the natural hazards community

Winter/Spring 2000

Service, Science, and Technology

The Next Level of Service: Just Do It!

Although we are in a service-related economy, good service is hard to find. Sales clerks rarely know their products. Persons identified as customer service representatives rarely have authority to solve problems. The National Weather Service (NWS) is different. Our field office network uniquely positions us close to our customers and partners. We have the authority to solve problems. When it comes to providing service, our attitude should be "Just do it!"

Providing excellent service requires us to be clear on who are our customers and partners. Our customers are the tax paying public who want accurate, timely and credible weather, water, and climate information. Our partners are organizations, both public and private, who work with us to provide our mutual customers with the information they need.

Speaking With Authority

Our mission statement enables us to speak with authority when dealing with our customers and partners. Everyone must be able to articulate our mission. It is the key to unlocking service-related issues. The mission is boldly stated on page 2 of our Strategic Plan. Paraphrased, it says that we provide weather, water and climate warnings and forecasts for the protection of life and property as well as the enhancement of the economy. When contemplating a service issue, if it relates to our mission, "Just do it!" If not, don't do it.

In this environment, the term "value added" has no meaning. We should use any technology and any format to communicate effectively. Concerning the enhancement of the economy, we should create services for whole communities of customers and partners. Individual solutions for specific entities is the role of the private sector.

Consider a stock car race in a local office's forecast area. Race forecasts and specific venue forecasts are clearly the role of the private sector. The local office should meet with officials before the event to apprise them of routine NWS services as well as NOAA Weather Radio (NWR) and other NWS dissemination sources for warnings. If a warning is required, the venue should be mentioned. If the local office has a point of contact at the venue, they should notify them. It's mission related, it's our job, "Just do it!"

We are an action-oriented agency. Our name is service. Knowing our mission provides us the authority to make local decisions. We are expected to make things happen. Let's take the NWS to a new level of service. It is within our power, let's do it!

Gregory Mandt, Acting Director
Office of Meteorology

Inside Aware

CUSTOMER SERVICE

NWS-FEMA Offer Four EM Classes

Over the past several years, staff at NWS and the Federal Emergency Management Administration (FEMA) have collaborated to produce four courses for emergency managers. These courses are typically presented by a WCM and emergency manager. The following is a list of the courses and a brief description of each.

- **Partnerships for Creating and Maintaining Spotter Groups:** The course offers WCMs and emergency managers tips on jointly creating new or improved spotter groups. The workshop gives participants the necessary awareness and tools to strengthen the spotter network.

- **Hazardous Weather and Flood Preparedness:** This course is intended to improve coordination between emergency management and NWS. The goal is to promote more proactive responses to weather and flood hazards. The course was developed by the NWS and FEMA staff with input and assistance from many state and local emergency managers.

- **Warning Coordination:** This course identifies warning coordination and communication needs based on event type and the threat the event poses to the community. Working with members of the media, you will develop a strategy to ensure effective dissemination of warning messages. It is strongly recommended that all participants first attend the "Hazardous Weather and Flood Preparedness."

- **Community Hurricane Preparedness:** The purpose of this is to provide EMs and other decision makers who cannot attend the course with basic information about how hurricanes form, the hazards they pose, how the NWS forecasts future hurricane behavior, and what tools can help EMs prepare their communities. This course is also available on CD or the Web at **meted.ucar.edu/hurrican/chp/index.htm**.

For more information or course materials, contact John Ogren at 301-713-0090 ext. 140 or **John.Ogren @noaa.gov.**

John Ogren, WCM Program Manager

Drought Forum Showcases Public Info Packet, Cross State Issues

The National Disaster Education Coalition (NDEC), a federation of public and private organizations dedicated to providing outstanding education materials and information on natural hazards, sponsored a 1-day Drought Forum. The goal of the forum was to produce a consistent information package on drought for the general public. NDEC will use information gathered during the forum to write information about drought for the public. In addition to explaining drought and its effects, the information will outline steps individuals, families and communities should take before and during a drought. The information is intended to be generic and supplemented by region or event-specific materials prepared by other organizations.

The 1-day workshop was held on February 17 at NWS Headquarters. Approximately 75 people attended the forum. Participants were asked to identify key points about the impacts of a drought on daily life, economics, agriculture, the environment, and ultimately, on the health of people, plants and animals, and water supply systems. Participants were encouraged to provide their expertise on drought-related publications and to identify handouts available from organizations and agencies.

Bruce Romer, Chief Executive Officer of Montgomery County, MD, was the first keynote speaker. Drought was severe in Maryland and the DC suburbs in the summers of 1998 and 1999. Romer discussed how to deal with drought

Aware

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Vacant, Chief, Tech./Fcst. Systems

***Aware* in PDF—www.nws.noaa.gov/om/nwspub.htm**
***AwareNow*: frequently updated html version: www.nws.noaa.gov/om/awarenow.htm**

in a multi-jurisdiction and multi-state situation where public information and recommended actions are inconsistent and conflicting. His presentation provided the stimulus for five morning break-out sessions, addressing drought impacts on water resources, agriculture, wildlife, environment and public health.

Dr. Fran Winslow, Director of Emergency Services, San Jose, CA, was the second featured speaker. Dr. Winslow focused on daily life styles of people living in California who practice water conservation routinely. Getting the public to respond to water conservation required identifying "Public Hot Buttons to Drought." Topics to induce public awareness and mitigation towards drought included: clean water/diseases, multi-lingual messages, personal hygiene, and impacts to the elderly. A one-page hand-out, "Surviving the Drought" contained many useful, practical tips for saving water around the house.

The afternoon sessions focused on preparedness and mitigation aspects of drought and defining what to communicate to the public.

Ron Gird, NWS Outreach Manager
Rocky Lopes, American Red Cross

Partners Workshop To Focus on Improved Service Delivery

The next "NWS Partners Workshop" is scheduled for April 26 at NWS Headquarters. An invitation letter was sent to potential attendees requesting their ideas for topics. When these ideas are received, the agenda will be finalized and a fact sheet prepared for attendees. The fact sheet will ensure there are fewer presentations and more discussions that will improve service delivery. To get updated information on the workshop, go to **www.nws.noaa.gov/om**.

Ron Gird, NWS Outreach Manager

OM Creates Severe/Winter Weather Awareness Web Pages

In October 1999, OM created the Winter Weather Awareness Web page. This page provides "one-stop shopping" for winter weather awareness and preparedness information. The page contains links to awareness and preparedness guides, forecasts, warnings, climate information, outlooks, billion-dollar winter storms, transcripts of an online winter weather chat with NWS meteorologists, and a calendar of winter weather awareness events in various states: **www.nws.noaa.gov/om/winter/index.html**.

In January 2000, OM remodeled the Severe Weather Awareness Web page. This page focuses on thunderstorms, tornadoes and floods. It contains links to awareness and preparedness guides, forecasts, warnings, climate information, outlooks, billion dollar severe storms, post storm assessments, and a calendar of severe weather awareness events in various states. Check out the page at **www.nws.noaa.gov/om/svrawar/svrwx.htm**.

Mike Gerber, Meteorologist

When Seconds Count, StormReady Communities Are Prepared

On March 2, NWS Director Jack Kelly officially launched StormReady as a national program at a press conference in Norman, OK. The press conference was covered by CNN, CBS, USA Today, AP, and numerous local media outlets.

The top goal of StormReady is to prepare communities with an action plan that responds to the threat of all types of severe weather—from tornadoes to tsunamis. StormReady was a voluntary program created in 1998 by the NWSFO Tulsa, OK. The program provides clear-cut advice to city leaders and emergency managers and media aimed at improving response to local hazardous weather operations.

An advisory board, comprised of NWS warning coordination meteorologists, and state and local emergency managers, will review applications from municipalities and visit the locations to verify the steps made in the process to become StormReady. After the advisory board approves certification, the community will receive a formal letter, along with StormReady signs that can be displayed along its major roadways. StormReady communities must remain vigilent because the designation is only valid for 2 years. The advisory board seeks to officially designate 20 communities as StormReady each of the next 5 years.

For more information about the StormReady program, go to **www.nws.noaa.gov/stormready**.

John Ogren, WCM Program Manager

INTEGRATED HYDROMETEOROLOGICAL SERVICES

Great Lakes Marine Products Enhanced in Three Areas

On September 15, NWS offices responsible for the Great Lakes Open Lake Forecast added three new features to their forecasts: a synopsis, 4th period forecast and 3-5 Day Outlook.

The offices also now headline gale and/or storm force winds expected in ***any*** period of the forecast, excluding the outlook. The five WFOs responsible for the Open Lake marine product are:

- WFO Marquette, Lake Superior
- WFO Chicago, Lake Michigan
- WFO Detroit, Lake Huron and Lake St. Clair
- WFO Cleveland, Lake Erie
- WFO Buffalo, Lake Ontario, St. Lawrence River.

The Lake Carriers Association reported favorable comments by carrier captains on the changed Open Lake forecast.

All 10 Great Lakes NWS offices will continue to be responsible for Near Shore Forecasts, Special Marine Warnings, Lake Shore Warnings, and Marine Weather Statements for their areas.

Richard May, Acting Program Manager, Marine Weather Services

NWS Completes Coastal Marine Service Transfers

NWS completed the last of the coastal marine forecast (CWF) service transfers on December 1, 1999. On that date NEXRAD Weather Service Office (NWSO) Caribou, ME, assumed full warnings and forecast responsibility for a portion of Maine waters from NWSFO Portland, ME. This transfer ended a year-long process of marine service transfers to the future marine Weather Forecast Offices (WFOs). The major transfers included:

- **Eastern Region:** On December 1, 1998, NWS offices in Washington, DC/Baltimore, MD; Raleigh/Durham, NC; Columbia, SC; and Miami, FL; transferred marine responsibility to offices in Wakefield, VA; Newport, NC; Wilmington, NC; and Charleston, SC.
- **Central Region:** On April 6, 1999, Open Lake responsibility for Lake Superior moved from NWSFO Chicago, IL, to NWSO Marquette, MI.
- **Western Region:** On May 4, 1999, NWS offices in Los Angeles, CA; San Francisco, CA; and Portland, OR; transferred marine responsibilities to offices in San Diego, CA; Eureka, CA; and Medford, OR.
- **Southern Region:** Transfers were performed in three phases:
  - On March 15, 1999, most Texas and some Florida coastal marine zones moved from Miami FL; San Antonio, TX; and Fort Worth, TX; to Melbourne, FL; Houston, TX; Corpus Christi TX; and Brownsville, TX.
  - On July 15, 1999, east Texas and southwest Louisiana zones moved from San Antonio and New Orleans to Lake Charles LA.
  - On November 15, 1999, Alabama, Mississippi and most Florida coastal marine zones shifted from offices in New Orleans, LA, and Miami, FL, to Mobile, AL; Tallahassee, FL; Tampa Bay, FL; Key West, FL; and Jacksonville, FL.

Maps of the reconfigured coastal marine zones and responsible WFOs are posted on the Web page at **www.nws.noaa.gov/om/marine.htm.** Descriptors and other details are listed in the Weather Service Operations Manual (WSOM) Issuance 00-04 (new Appendix B to WSOM D-51) or online at **www.nws.noaa.gov/om/appendix-b.pdf**.

Richard May, Acting Program Manager, Marine Weather Services

Coastal and Offshore Marine Forecasts Now Issued on NAVTEX

On November 30, 1999, the Marine Prediction Center (MPC) and Tropical Prediction Center (TPC) began issuing a new specialized product for the nine U.S. Coast Guard (USCG) NAVTEX transmitters on the Continental United States and Puerto Rico:

Boston, MA	New Orleans, LA
Chesapeake, VA	Cambria, CA
Savannah, GA	Pt. Reyes, CA
Miami, FL	Astoria, OR
San Juan, PR	

The new NAVTEX product is a combination of the Coastal and Offshore marine forecast products. It contains a synopsis, warnings and forecasts for gales, storms, hurricanes and tropical storms. The NAVTEX product meets the United States obligations under the International Safety of Life at Sea conventions.

NAVTEX is a 100 baud radio-teletype broadcast (518 kHz) of urgent marine safety information, including warnings and forecasts, to ships worldwide. In the United States and its territories, the U.S. Coast Guard broadcasts NAVTEX from 12 of its facilities over large portions of the Atlantic, Pacific, Gulf of Mexico and Caribbean waters. The NAVTEX products were not required for the transmitters in Alaska, Hawaii and Guam.

To solve the NAVTEX issue, in early 1999, NWS Headquarters formed a team from Southern, Western, Eastern and Alaska regions, and the MPC and TPC. The team recommended a new NAVTEX product designed specifically for each of nine USCG NAVTEX transmitters around the Continental United States and Puerto Rico.

We appreciate the hard work on the NAVTEX issue done by the forecasters at MPC and TPC and are grateful for the valuable input provided to us by the regions.

Richard May, Acting Program Manager
Marine Weather Services

Flood Prediction Program Gets Budget Backing

The NOAA's FY 2000 budget includes $1 million for implementation of the Advanced Hydrologic Prediction Service (AHPS), an advanced river forecast initiative.

"AHPS is an essential component of the NWS's suite of weather, water and climate services," said NWS Director John J. Kelly Jr. "National implementation of AHPS will save lives and an estimated $200 million per year in flood losses and an additional $400 million per year in economic benefits to water resource users."

The system will provide more information and visual displays to help local managers make better water management decisions. New products will depict the magnitude and uncertainty of river flow events forecasted days and even weeks in the future. The system includes a combination of software and hardware tools used for analyzing data and creating graphical displays of probability forecasts.

AHPS builds on NOAA's other technologies, such as Doppler weather radars, satellites, supercomputers, weather observation stations, and the new interactive weather computer and communications system, the Advanced Weather Interactive Processing System (AWIPS).

Following the Great Flood of 1993 in the Midwest, the Des Moines River Basin was selected as the initial AHPS demonstration site. This proved to be a significant benefit to local water resource and emergency managers. During FY 2000, the agency will begin implementing AHPS in the upper Midwest, including Wisconsin, Minnesota, Michigan, Illinois and portions of Iowa, Missouri and North Dakota, as well as tributaries in the Ohio River basin flowing into Kentucky, West Virginia, Ohio and western Pennsylvania.

"River forecasting is critical to public safety," declared Kelly. "In an average year, more than 130 people are killed by flooding and flash flooding, and flood-related damages exceed $3.5 billion. AHPS provides more information than current forecasts. As a result, people will have more time to plan to protect themselves and their property." Agency officials said the system can also be of tremendous value to water managers in planning for possible droughts. Users will obtain graphical products for forecast periods several months in the future and will be better able to make informed decisions.

Susan Weaver, NWS Public Affairs

TECHNOLOGY AND FORECAST SYSTEMS

AWIPS Adds Rapid Prototype Project to Suite of Tools

The Interactive Forecast Preparation System (IFPS), developed by the Techniques Development Laboratory (TDL) and the Forecast Systems Laboratory (FSL), helps NWS staff prepare forecast products from a digital database. NWS will implement IFPS nationwide beginning with AWIPS Build 5.

NWS is testing a new IFPS activity, the Rapid Prototype Project (RPP), at seven sites: Charleston, WV; Tulsa, OK; Boulder, CO; Boise, ID; Alaska Region Headquarters; Honolulu, HI; and the Hydrometeorological Prediction Center. There are three primary areas of focus for this non-operational evaluation of the IFPS software components at RPP sites:

- Making recommendations for software modifications to the model interpretation and grid-editing tools
- Locally prototyping modernized products
- Initiating the forecast process change that accompanies the use of IFPS.

NWS has installed PCs running Linux on the AWIPS LAN at RPP sites. Forecast staff is evaluating the first component of IFPS software, the GFESuite. The GFESuite provides gridded initialization routines and a graphical forecast editor. The GFESuite also provides tools for graphical product generation.

Next, RPP staff will evaluate model interpretation tools. These tools do not edit sensible weather directly, but rather interactively adjust threshold values used in the interpretation of model guidance into sensible weather forecasts. Model interpretation provides flexibility by tying threshold adjustments to model blends, model timing, terrain features, related forecast elements, and forecast model parameters. Forecasts produced by both of these IFPS software components can be used for the local prototyping of modernized products.

NWS has set up a list server and database for storage of the RPP software bug reports and modification requests. The list server will be used primarily to exchange information from the developers and comments and questions from the RPP staff. The database will be used to store software bugs and requests for software changes. The RPP Coordination team will prioritize software requests entered into this database. TDL and FSL staff will estimate level of effort needed for these software requests to prioritize them. Additional information on IFPS and RPP is available online.

Jamie Kousky, Meteorologist

SCIENCE AND TRAINING

Baseline Proficiency Standards Completed, Ready for Field Review

In December 1999, NWS completed the initial set of Baseline Proficiency Standards (BPS) for its field staff. Seven teams of NWS field representatives (with NWS Employee Organization representatives) drafted the BPS. The standards will now be reviewed at selected NWS forecast offices, River Forecast Centers and Center Weather Service Units (CWSUs). The BPS is intended to:

- Provide all NWS staff members with easily-accessible, clearly articulated information on the skills they are expected to possess in their position
- Offer a link to available training for each job or task
- Provide evaluation criteria against which managers can measure current job skills against the new baseline standards.

Once completed, OM and the NWS Employees Organization will assemble and summarize recommendations from the field test, including proposed objective evaluation criteria for assessing BPS completion, and post it on an NWSTC Web page. This review will determine future timelines to be published when available.

Mike Dion, BPS Program Leader

NWS to Finish Defining Training Requirements in FY 2000

NWS continues its efforts to develop training requirements for all field staff. Meetings were held during November 1999 at the NWSTC in Kansas City to define training needs for the NWS Cooperative Program and for CWSUs. The Regional Cooperative Program Managers who attended the meeting also agreed to generate training requirements for other functions handled by Hydrometeorological Technicians.

NWS held training requirements meetings in January 2000 for the areas of management, supervision and team dynamics, and marine forecasting. Meetings will also be held to determine training needs for climate, fire weather forecasting and administrative support. NWS management plans to have training requirements fully define by the thrid quarter of FY 2000. When completed, they will be posted on an NWSTC Web page.

Eli Jacks, Training Program Manager

COMET Adds Four New Case Studies

The Cooperative Program for Operational Meteorology., Education and Training (COMET) has posted four new events to its Case Study Library at **www.comet.ucar.edu/resources/cases/**. These cases cover a variety of meteorological events and bring the library total to 22 cases.

- **Case 19:** May 3, 1999, severe convective event affected much of northern and central Oklahoma and south-central Kansas and spawned an F5 tornado. Tornadoes in Oklahoma and Kansas resulted in 48 deaths and several hundred injuries.

- **Case 20:** September 13-17, contains data for Hurricane Floyd, which brought heavy rain and flooding to the eastern coast of the United States and was responsible for 68 deaths and $2.5 billion in damages.

- **Case 21:** October 30-November 1, heavy rains that resulted in 11 inches of rainfall in south-central Kansas and caused in record flooding in four rivers. There were numerous incidents of flash flooding that closed roads and resulted in one automobile-related fatality.

- **Case 22:** June 2-3, 1998, severe weather from Buffalo, NY, to Sterling, VA. This case is temporally connected to COMET Case 18 as it follows the derecho event that moved from Minnesota to New York.

COMET's next case will be on the November 9-11, 1998, Winter Severe Weather, which resulted in blizzard conditions in the Upper Midwest and severe thunderstorms through the Mississippi Valley.

To stay informed on the latest developments in the COMET case study project, subscribe to our mailing list at **http://www.joss.ucar.edu/cometCases/mailList.html**.

Elizabeth Page, OM Case Study Meteorologist

IST PDS Program Releases Two Web Modules

Two new modules are now available through the the Integrated Sensor Training (IST) Professional Development Series (PDS) program:

- *Three Classes of Storm Top Signatures in Infrared Satellite Data*. This module is a companion to the IST PDS/VISIT teletraining session on the Enhanced-V: A Satellite Severe Storm Signature at **www.cira.colostate.edu/ramm/visit/ev.html**. The IST PDS program welcomes your comments and feedback. If you have not taken part in the Enh-V teletraining session, the latest schedule is available at **www.cira.colostate.edu/visit**.

- *Polar Satellite Products for the Operational Forecaster Module 3: Case Studies*. This module provides two case studies that incorporate POES derived product imagery with data from other remote observing systems. The first case is a snow event in the Pacific Northwest. The event highlights the use of AMSU derived moisture products to supplement GOES imagery, numerical prediction model, and other in situ data to predict onset and duration of snowfall over Eastern Washington State on February 2, 1999.

The second case example involves predicting rainfall associated with Hurricane Georges. This example uses the SSM/I rainfall rate product to demonstrate the ability of POES microwave data to assess rainfall potential for tropical cyclones. A technique used to produce the Tropical Rainfall Potential product is applied to Hurricane Georges (September 1998) and compared with both numerical model quantitative precipitation forecasts (QPF) and hourly (gauge and NEXRAD) estimates.

These comparisons highlight the important role POES microwave data play in assisting with short-term QPF and the flash flooding potential of tropical storms. The module includes a survey to be e:mailed back to COMET.

You can find both classes online at **meted.ucar.edu/ist**.

Tony Mostek, Satellite Training Program Manager

COMET Publishes Two New NWP Segments

COMET has published two segments of the Numerical Weather Predication (NWP) PDS training:

- Understanding NWP Models and Their Processes
- Understanding Current Characteristics of Operational NWP Models.

These segments are available from the meted page **www.meted.ucar.edu/nwp/index.htm**. Click on pcu1 and pcu2 to access the training modules.

Both segments can also be accessed directly from the NWP matrix at **www.meted.ucar.edu/nwp/pcu2/index.htm**.

The far left column of the matrix contains background information on the fundamentals of NWP models and covers topics on model type, vertical coordinates, horizontal and vertical resolution, and model domain issues. The remaining columns address information on these topics with respect to specific operational models. Included so far are the Eta and AVN/MRF models.

The matrix will be updated continuously and will provide access to characteristics of the operational model suite. Topics will continue to be added over the next year. COMET expects to publish the next installment on model cloud and precipitation processes in late winter 2000. For more information, contact Rich Cianflone at **richc@comet.ucar.edu**.

Rich Cianflone, University Corporation for Atmospheric Research/COMET, Boulder, CO

NOAA WEATHER RADIO

New Voice Technology to Show Its Ability in Late March

Voice Improvement: The first demonstration of a different voice technology using recorded human voice (concatenation) will take place the last week in March 2000. The demonstration will take place at the Console Replacement System (CRS) contractor's site in Camarillo, CA. This capability is initially designed to handle all NWS watches, warnings and advisories. If the demonstration is successful, the software will be installed and tested at two NWS sites: Glasgow, MT, and Fort Worth, TX. The testing is expected to begin this summer. The national implementation of the concatenation technology must be handled via the complete procurement process, necessitating a national scope and issuance of a Request for Proposal.

Spanish Voice To Get User Review

Before launching the national implementation, NWS Headquarters will ask a third-party to assess the effectiveness of the Spanish synthesized voice within a non-bilingual Spanish-speaking population. Assessment results will be used to adjust the implementation plan for the voice and may result in a delay until NWS can concatenate the Spanish predefined translations.

Joanne Swanson, CRS Program Leader

NWR Gains New Corporate Sponsor, Office Depot

Office Depot is becoming a major promoter of NWR. In recent meetings, Office Depot management has said they want to become a major player in the NWR market. In addition to selling the radios, they are committed to promoting NWR on their Web site and in weekly sales flyers. They will also promote NWR to their corporate partners and reproduce the tri-logo pamphlets in large quantities. NWS is working with Office Depot to gain their support of NWS hazardous weather awareness campaigns.

John Ogren, WCM Program Manager

New Temperature Outlook Products for Heat to be Available June 1

In July 1995, a heat wave struck Chicago, killing 522 people. In the aftermath, research from the U.S. Centers for Disease Control and Prevention (CDC) revealed the extent of the deadly nature of heat waves. According to the CDC, an average of 384 people were killed by excessive heat each year from 1979-1992. The highest annual number of heat-related deaths, 1,700, occurred in 1980.

One positive outcome from the July 1995 heat wave studies was acknowledging that our definition of excessive heat needed major changes. No longer could excessive heat be defined with respect to a single maximum apparent temperature, i.e., 105°F. A number of additional factors beyond other meteorological elements (such as wind and cloud cover) were identified as necessary to the equation:

- Nighttime apparent temperature (because lower nighttime minimum temperatures can provide relief)
- How long people were going to be subjected to the heat (day in a sequence of hot days)
- Time of season (early in the season has more impact on the number of heat-related deaths than later in the season)
- Fact that some regions of the country are statistically more prone to heat-related deaths while others appear to be more resistant (because of a combination of climatological, physiological and sociological factors).

In August 1999, Commerce Secretary Daley announced ". . .we have put on a fast track research that will allow us to forecast the probability of heat waves 2 weeks in advance. This valuable information will be available to communities by next summer."

As promised, on June 1, the Climate Prediction Center (CPC) will start providing Apparent Temperature Probability Outlooks. These Outlooks were designed to provide as broad a range of information for the major factors linked to heat-related deaths without being unduly complicated.

The Outlooks will emphasize daily mean apparent temperature rather than maximum apparent temperature, although CPC also will provide the expected value of the maximum. Because health risks vary enormously from area to area, CPC will issue forecast probabilities for temperatures exceeding three different thresholds. These will be overlaid on isolines of the climatological normal probabilities. CPC chose the threshold temperature values based on when cumulative exposure would cause significant health risks for a number of the most vulnerable cities. In addition, because vulnerability increases with duration of the heat wave, risks for exceeding the lower threshold are for durations longer than one day.

These new products will consist of maps of probabilities of daily mean apparent temperature for thresholds equal to or greater than 85°F, 90°F, and 95°F for periods ranging from 3-7, 6-10, and 8-14 days. The probabilities will be for different minimum numbers of days, namely 3, 2 and 1 days, respectively, when the thresholds are equaled or exceeded.

More specifically, for the 3-7, 6-10 and 8-14 days forecast period, the new products will cover percent chance of:

- Daily average apparent temperature equal to or greater than 85°F occurring for three or more days
- Daily average apparent temperature equal to or greater than 90°F occurring for two or more days
- Daily average apparent temperature equal to or greater than 95°F occurring for one or more days

Prof. Laurence S. Kalkstein, Center for Climatic Research, University of Delaware, has developed information about a number of municipalities' vulnerability. Much of this work has been conducted in consultation with NWS researchers.

Warning systems based on Kalkstein's work have been successfully used in Philadelphia and Washington, D.C. A key to this success has been partnerships between Kalkstein, public health officials, and the local NWS offices. Plans are underway to extend this work to several municipalities in Ohio and in Phoenix, AZ. There will also be a Web site summarizing insight about factors affecting regional variability in vulnerability to heat waves.

Judy Koepsell, Meteorologist, Climate Services Division

National Center Issues

Hurricane Track Book Updated

The NOAA hurricane track book entitled "Tropical Cyclones of the North Atlantic Ocean, 1871-1999" has recently been updated. This book is available through the National Climatic Data Center and can be ordered by mail:

National Climatic Data Center
151 Patton Avenue, Rm. 120
Asheville, NC 28801-5001
phone: (828) 271-4800
fax: (828) 271-4876
TDD: (828) 271-4010
e-mail: **orders@ncdc.noaa.gov**
Internet: **http://www.ncdc.noaa.gov**

Stacy Stewart, WCM, TPC/NHC

Hurricane Preparedness CD Reaches 1,000 Emergency Managers

The NWS/FEMA/COMET Community Hurricane Preparedness CD has been available since June 1999 as a Distance Learning Course through FEMA. In addition to being distributed to local NWS offices, approximately 1,000 emergency managers and other local officials have enrolled in the course.

Stacy Stewart, WCM, TPC/NHC

Hurricane Aware Tours Scheduled

Caribbean and Gulf of Mexico Hurricane Awareness Tours (HAT) are scheduled for March 13-18 and May 1-5, respectively. We will be conducting the HATs along with John Pavone, Chief, Hurricane CARCAH, Hurricane Reconnaissance Unit.

Stacy Stewart, WCM, TPC/NHC

Three Hurricane Preparedness Courses Draw Large Audiences

In January and February 2000, 80 attendees completed three 1-week FEMA's "Introduction to Hurricane Preparedness" courses. The attendees included 78 local emergency managers from the Gulf Coast, Southeast and Northeast regions of the United States, and two Air Force officers from the U.S. Southern Command, Miami, FL.

The TPC/NHC provided several instructors to conduct and teach the meteorology sessions. The instructors also interacted with the attendees and answered questions during the course. This remains one of the most popular courses FEMA sponsors. It will be revised and updated later this year.

Stacy Stewart, WCM, TPC/NHC

Community Outreach Activities

Freezing Fog Advisories Help Reduce Ice Accidents

Last winter and again this winter, NWSFO Little Rock has been conducting an experiment involving "Freezing Fog Advisories." The aviation term "Freezing Fog" was adopted as a means of alerting the general public about the hazard caused by fog when temperatures are below freezing. Often, this situation causes a thin layer of ice to develop on bridges, overpasses, and other elevated roadways, resulting in numerous traffic accidents during morning rush hour.

The idea for issuing Freezing Fog Advisories came from news media coverage of icy-bridge accidents during the winters of 1996-97 and 1997-98. In many cases, forecasters at Little Rock had issued Special Weather Statements about the icy bridges during these winters and had shown skill at recognizing the occasions when the slippery conditions would occur. The point of issuing advisories was to increase public notice of the problem. The formal advisories, and the inclusion of a headline in the Zone Forecasts, bring much more news media attention to the problem.

The news media picked up on the new terminology very quickly and featured the advisories during news shows and weathercasts. Forecasters have shown considerable skill at issuing the advisories for the appropriate times. The experiment was approved in advance by regional and national headquarters. Forecasters were not confined to the strict aviation definition of freezing fog, i.e., visibilities less than 5/8 statute mile because icy conditions have developed, at times, when visibilities were in 2-3 mile range. Although similar situations are called "black ice" in other parts of the country, this term was not used since it is not a common term in Arkansas.

John Robinson, WCM, NWSFO Little Rock, AR

Datastreme Taps NWS as Web Source

NWSFO Little Rock, AR, Senior Forecaster John Lewis has received acclaim for the office's Web site from inside Arkansas and across the country. Most recently, graphics from our site were used in a fall AMS Datastreme lesson. (Datastreme is a program that helps teachers keep up-to-date.)

Little Rock Web materials were used to illustrate the January 21, 1999, tornadoes in Arkansas. The office has been working with Datastreme for more than two years. Several members of the Little Rock staff serve as mentors for the teachers involved in the program.

Datastreme used our Web site information for the March 1, 1997, outbreak as well. In addition to providing Web resources, we also hold Datastreme meetings at our office. Datastreme is an excellent form of outreach and provides a logical extension of that program for both the office and for the Arkansas Chapter of the AMS/NWS. Our office recommends the program to those not already involved in it. To see what has been used, You can view the AMS Datastreme Web page under Activity 7B.

George R. Wilkin, SOO, NWSFO Little Rock, AR

Ideas for an Office Open House

Nearly 850 people attended the open house held by the NWSFO St. Louis staff on October 16. Guests asked questions of staffers and watched frequent balloon launches while waiting in line for the tour. Once inside the building, attendees were given a presentation on the mission and operations of the NWS. The tour then wound through the operations area, observing demonstrations of AWIPS, CRS, and the WSR-88D.

The staff created and displayed informational posters on Doppler radar interpretation, the office COMET Cooperative with St. Louis University, storm damage surveys, the office Internet home page, and winter precipitation type. The HMT staff also had cooperative observer equipment on display. Attendees also could ask questions of the ET staff and look inside the RDA shelter. The American Red Cross and St. Louis County Emergency Management officials set up booths outside the office. While over 90 percent of the attendees were from the St. Louis metro area, guests came from the farthest counties in the CWA, Kansas, Mississippi, and Georgia.

Steven Thomas, MIC, NWSFO St. Louis, MO

Disaster Preparedness and Winter Weather Awareness EXPO

On October 30, NWSO Billings, MT, took part in a Disaster Preparedness and Winter Weather Awareness EXPO. This EXPO concluded the activities of Disaster Preparedness month and Winter Weather Awareness Week across Montana. WCM Steve Kuhl, Senior Forecasters Chuck Bikle and Mark Strobin, General Forecaster Rick Canepa, and Meteorological Technician Carolyn Gurney staffed a NWS public outreach booth.

The EXPO was organized by the NWS Billings, MT, Outreach Committee. Agencies staffing booths at the EXPO included: American Red Cross; Yellowstone County Department of Emergency Services; State of Montana Department of Emergency Services; Yellowstone County Amateur Radio Club; Northern Ag Network; Smith's Foods; Sears Department Stores; Billings Fire Department, Montana State Highway Patrol; American Medical Response; and the Montana Department of Transportation.

The advertisement at left reflects a strong public/private partnership working to keep people safe and to promote weather safety and disaster preparedness.

Steve Kuhl, WCM, NWSO Billings, MT

Low Level Wind Shear Program Now Online

Two slide shows on Low-Level Windshear are available on line from CWSU Seattle in PowerPoint/Corel Presentations formats.

Pilot's knowledge of LLWS: This presentation is based on a series of surveys taken in the late 80s and early 90s. The idea was to prove that pilots don't understand LLWS terminology. These were published and presented at several AMS Aviation conferences as the work progressed. The same survey was given to the participants at an Aviation conference in Kansas City, and shows that many forecasters do not understand LLWS terminology either.

Proper use of LLWS in the TAF: This second part was made in hopes of refreshing forecaster's knowledge about LLWS, its definition, the difference between LLWS and low level turbulence, and the use of LLWS in the TAF. A shortened version was shown at the WRH MIC conference in the spring of 1999 and the downloads are the result of an action item from the conference.

Bob Jackson, CWSU Seattle, WA

Creating A Spanish Language Web Page

Need a way to convert material into Spanish? Check out this Western Region site for help. The Spanish language Web Page is an excellent idea for reaching large Hispanic populations NWS was unable to reach before. The Spanish Web Page focal point, Miguel Miller, is constantly modifying the software and making significant improvements. Therefore, the Web page is a living document that improves almost daily. For the very latest updates, please contact Miguel at the San Diego NWSO.

Armando Garza, Miguel Miller, Brandt Maxwell, NWSO San Diego, CA

"Twins" Stars Promote Weather Safety

Minnesota Twins Manager Tom Kelly and players Terry Steinbach and Todd Walker have recorded safety messages dealing with adverse weather and NWR. The Public Service Announcements (PSAs) are 30 and 60 seconds long and are put to music. They are available on our home page in a variety of formats. Please let the media in your area know of their availability. If you need a CD version, I can easily create one. If you have any questions concerning the PSAs, feel free to drop me a note at **Todd.Heitkamp@noaa.gov** or give me a call at 605-330-4247.

Todd Heitkamp, WCM, NWSFO Sioux Falls, SD

Drawn to Safety by Magnets

As part of the South Dakota Winter Weather Preparedness Week, Lead Forecaster and Project Impact Education Committee Chairman Stan Keefe worked with two local supermarkets to produce 6,000 refrigerator magnets with Winter Weather Safety Tips. Aberdeen WFO meteorologists handed out many of the magnets, along with other Winter Weather Safety information, at the supermarkets during the weekends bordering Winter Weather Preparedness Week. Graphics and details for this project can be obtained by contacting Stan at WFO Aberdeen. Information on other Aberdeen Project Impact Education efforts will be made available by FEMA on a CD highlighting Project Impact initiatives from across the country.

George Marshall, WCM, NWSO Aberdeen, SD

Chemical Emergency Option Draws NWR Grant

Jerry Orchanian, WCM, NWSFO Nashville, TN, is helping expand NWR coverage by working with his local Emergency Management Administration (EMA) director and representatives from Du Pont Chemical Co. Orchanian explained to the Du Pont reps how NWS can alert the community of chemical leaks via NWR. He showed them several ways NWS can state the nature of the chemical emergency: alerting for a shelter-in-place situation vs. an evacuation. Based on these discussions, the county EMA will sell Radio Shack brand NWRs with a tone-alert feature for $15. The county obtained a grant of $15,000 to subsidize this program.

To further spur interest in NWR, the NWS and county officials planned a surprise mock chemical leak from a tanker truck near Waverly, TN. The drill was held November 1. The Civil Emergency Messages were drafted up in X-NOW in AWIPS. The first Chemical Emergency Message initiated the drill around 9 a.m. The second Chemical Emergency Message gave the "all clear" at 11:04 a.m. These messages were received and sent out as a tone-alert over the McEwen NWR transmitter. The drill went smoothly according to the county EMA Director.

Jerry Orchanian, WCM, NWSFO Nashville, TN

TV Meteorologists Attend NWS Radar School

In November, NWSFO Dallas, TX, staff offered the last of five workshops for Dallas/Fort Worth area weathercasters. SOO Mike Foster and WCM Jim Stefkovich provided these workshops for five major TV stations, each sending multiple on-air personalities. The seminars focused on optimum use of WSR-88D products and Build 10 algorithm output as well as the integrated warning system. We also included an office tour and demonstration of the warning process using AWIPS, and discussions on continuing the strong partnership between the NWS and television media. We received written and verbal kudos for the series and plan to extend it to Waco/Killeen in December and Sherman/Denison areas by early 2000.

Jim Stefkovich, WCM, NWSFO Dallas/Fort Worth, TX

New Study to Focus on Supercell Thunderstorms

To research the interactions of meteorological elements during severe weather, scientists have planned a field project in parts of western Kansas and eastern Colorado during the severe weather season. The research, to be conducted late spring and summer, will help scientists better understand supercell thunderstorms.

The project, called STEPS, for Severe Thunderstorm Electrification and Precipitation Study, aims to better understand the interactions between the air flow, precipitation production, and electrification in severe thunderstorms on the High Plains. The goal is to improve the accuracy and reliability of weather warnings and forecasts for these disruptive storms. The area chosen is well known for producing severe hailstorms and storms with frequent positive cloud-to-ground lightning.

Installation of two research radars and a lightning mapping system will be complete by the end of April. Crews for several STEPS facilities, including the lightning mapping system, ballooning team and sounding units, will be based near Goodland, KS. A T-28 and Citation aircraft, along with a ballooning crew and mobile weather sensor network crew, should arrive at Goodland in May. The Operations Center for the project and research radars will also be activated in May. The field phase of the program will be based along the Colorado-Kansas border near the position of the seasonal dry line. The study is planned for an 8-week period from May to July 2000.

The STEPS team will look for a correlation between severe storms producing large hail and possible tornadoes with the occurrence of positive cloud-to-ground strikes. In addition, the study is expected to offer insight into Quantitative Precipitation Forecasting efforts on the High Plains. This project also will give some Emergency Managers and NWS SKYWARN Spotters the chance to work with project leaders and the Goodland NWS office. Trained spotters along the Colorado-Kansas border will be a key source for severe weather information and verification, and will be tremendous contributors to STEPS in the upcoming study.

Kevin Lynott, WCM, NWSO Goodland, KS

Grand Rapids Tests New Mesonet

Data from the initial sites in the Grand Rapids, MI, Mesonet are flowing over the airwaves of the Amateur Packet Radio System. The system runs through a computer with a Linux operating system and LDAD into AWIPS; it is plotted in D2D. This Initial Operating Capability of six stations has been online since early January 2000. The system will expand to more than 23 sites in 23 counties by fall 2000.

Volunteer Emergency Services and Support Agency (VESSA) completed final plans for the equipment and site configuration and presented them to Steelcase Inc. in December 1999. VESSA is a non-profit organization, which means that funds granted to it are tax deductible.

The program is funded by Steelcase Inc. and FEMA, which provided $10,000 and $30,000 respectively in grant money to VESSA in response to proposals written by Phillip Carino in 1998. Carino was then serving as the SKYWARN Team Leader for NWSO Grand Rapids.

Sparta, MI, test site staff will run a 2-week test of each new set of observing equipment for accuracy before the sensors are installed at airports across the 23 counties in the warning area. Initial equipment was installed at Sparta in January 2000.

Mike Heathfield, WCM, NWSO Grand Rapids, MI

Jackson, KY, Tests New Research and Education Programs

NWSO Jackson, KY, has been actively involved in programs to serve the educational community throughout the region. In additional to providing tours to thousands of school age students and attending numerous festivals, careers fairs and other community events, Jackson staff are involved in three new educational programs.

Global Learning and Observations to Benefit the Environment (GLOBE) is a worldwide network of students, teachers and scientists working together to study and understand the global environment. Students and teachers from over 7,000 schools in more than 80 countries are working with research scientists to learn more about our planet. During the past year, Michael Lewis, SOO, NWSO Jackson, KY, has been involved in training workshops for GLOBE.

These workshops have been conducted in Moscow, ID, and at the Fermi-Lab in Illinois. GLOBE trained and certified teachers take the program to the schools. Once trained, students measure, monitor and report environmental data to the world. This approach to applied science provides a useful tool to bring the world into the classroom. To get the latest on GLOBE, visit the GLOBE Web site at **http://www.globe.gov**.

INSITE Weather Stations: In August 1998, a Pioneer Grant was awarded to purchase and install a network of automated weather stations. These stations have been placed in schools throughout the area to provide a learning tool for the teachers, and to provide near real-time data for the hydrometeorologists.

Out of this grant, the Information Network for Science, Ideas, Technology and Education (INSITE) project was born. This collaborative project between the University of Kentucky Agricultural Weather Center, the Kentucky Department of Education and NWS uses available technology to send data via the internet to a server at the University of Kentucky. This data is then posted for use by anybody with Internet access. To view the latest information, visit INSITE at **http://www.crh.noaa.gov/jkl/stw**.

Summer Weather Education-Atmosphere Training (SWEAT) Workshop: The direct result of INSITE and GLOBE has been a request by the educational community of Eastern Kentucky to learn more about meteorology. NWSO Jackson, KY, will conduct the first annual SWEAT workshop. The SWEAT-shop is being developed locally as a collaborative effort between the Kentucky Department of Educatin and NWS. As of this writing, the instructors will be Dave Stamper, DAPM; Mike McLane, Service Hydrologist; Jim Keeney, WCM; Michael Lewis, SOO; and Shawn Harley, MIC. The teaching methods will be reviewed and developed with assistance from Eric Thomas, Science Consultant, Kentucky Department of Education Region Service Center 7.

Funding has been obtained to buy students textbooks and equipment. Teachers attending the week-long program will learn about the weather, climate and technology. By the end of the week, participants are being asked to identify a science/research project to bring to the classroom. After leaving the session, the equipment they receive can be used to gather data for research and to later use by future GLOBE participants.

Michael Lewis, SOO, NWSO Jackson, KY

Teachers Gain Math and Science Expertise From PCS Program

NWSO Wilmington, OH, took part in a National Teacher Training Institute for Math, Science, and Technology (NTTI) on Saturday, February 5. The institute was held at Wright State University near Dayton, OH. NTTI is a one-day conference and lesson development workshop. The program is designed to help teachers of Grades 3-8 improve math and science instruction by integrating video and other technologies into their classroom. This is a national program developed by WNET 13, New York, sponsored by the Corporation for Public Broadcasting. Think TV Network (Greater Dayton Public Television) is one of only two dozen national sites for the NTTI.

I took part in the NTTI through a display in the resource room. NWSO staff made a large NWS display and an NWR display where pamphlets were passed out. Around 120 teachers were registered for the training institute. The teachers who came by the display taught grades ranging from 2nd-9th. They had many questions about what meteorological resources are available for teachers. Many of the teachers were excited about teaching weather. This provided a great opportunity for them to talk with someone in the field of meteorology.

Mary Jo Parker, WCM, NWSO Wilmington, OH

Using Highway Overpasses as Storm Shelters: Slide Show

Need a dynamic slide presentation on using overpasses as storm shelters? Dan Miller, National Severe Storm Laboratory (NSSL), and others from NSSL, have put a presentation on the Web. This 25 slide production features lots of graphics on the topic of overpasses as shelters. Find it at **www.srh.noaa.gov/oun/papers/overpass. html**.

Jim Purpura, WCM, NWSFO Oklahoma City, OK

Survey, Severe Weather Week, NWR Keep NWS Office in News

Tennessee WCM Jerry Orchanian has had a busy couple of months extending outreach activities. Projects have included:

- TV and radio interviews on a tornado storm survey, Severe Weather Awareness Week, NWR and CRS
- Numerous public tours
- SKYWARN Spotter Classes held on the road in smaller towns and at the UAW Hall for the General Motor Saturn plant
- Film project for NOAA in Clarksville, TN.

Jerry Orchanian, WCM, NWSO Nashville, TN

Grocery Bags Clarify Tornado Safety Rules

WCM Jim Stefkovish, NWSFO Dallas, TX, has just completed a review of Tornado, Flash Flood and Lightning safety rules with Willamette Industries in Dallas. Willamette produces paper bags for almost every grocery store in Texas, Oklahoma and parts of New Mexico, Arkansas, and Lousianna. Willamette intends to print these safety rules on all bags throughout the spring. One of the major changes made was correcting the perception that bridges are safe places from strong winds. Willamette has said it would print with the following warnings, "DO NOT seek protection under bridges."

Jim Stefkovich, WCM, NWSFO Fort Worth, TX

NWS Gets Kudos From Texas Media

On March 7, WCM Jim Stefkovich, NWSFO Dallas/ Forth Worth, represented NWS at the WFAA-TV (ABC) “Family First” meeting at a local High School. This was a one hour live show broadcast on WFAA’s sister station,

Texas Cable News Network (TXCN), which reaches 600,000 homes in the Dallas/Fort Worth Area. Almost 800 people were in the audience.

All three weathercasters from the station were on hand, as well as representatives from FEMA (Project Impact), Texas Tech University, severe weather "Safe Room" builders, Amateur Radio Operators, Storm Chaser organizations (including Tim Marshall), and local emergency management.

Stefkovich answered about 80 percent of all questions put to the panel. Of special importance was the weathercasters publicly acknowledging the fact that the NWS, including the Fort Worth Office, "are the experts when it comes to severe weather warnings and forecasts."

Jim Stefkovich, WCM, NWSFO Fort Worth, TX

Weather Safety PSAs Hit Western Air Waves

NWSO Billings WCM Steve Kuhl recently recorded six PSAs on Severe Weather Safety and NOAA Weather Radio. The PSAs were professionally recorded in partnership with Northern Broadcasting System, Northern Ag Network. The Northern Broadcasting System has 65 radio station affiliates in five states: Montana, Wyoming, Idaho, North Dakota and South Dakota. These stations had access to the PSAs via satellite on March 1. The subjects of the PSAs are:

- Severe Thunderstorms
- Flash Floods
- NOAA Weather Radio
- Tornadoes
- Blizzard and Wind Chill
- Watch and Warning

The PSAs are also on the NWSO Billings Home Page as wave files that can be downloaded by the general public or linked to by other NWS offices in the five states if they wish. The caption on our PSA page says "Public Service Announcements on Weather Safety. Forming public/private partnerships to better educate the citizens of Montana and Wyoming on Severe Weather Safety and NOAA Weather Radio."

To view and hear the PSAs, go to **www.wrh.noaa.gov/billings**. Click on "Listen to our new PSAs," then download the files.

Steve Kuhl, WCM, NWSO Billings, MT

NWS Key West Takes Part in "Live From The Storm" Program On PBS

Meteorologist In Charge Bobby McDaniel, NWSO Key West, FL, and WCM Wayne Presnell took part in a question and answer portion of the PBS program "Live From the Storm, The Who, What, Where, When and Why of Weather." The program, which focused on hurricanes and winter weather, aired on March 7 from 1:00-2:00 p.m.

Students from across the country submitted questions in real-time to weather researchers and received individual answers back via electronic mail. The grade level of the students ranged from early middle school to early high school. The students were allowed to submit questions until 3 p.m. Bobby and Wayne received questions concerning hurricanes and thoroughly enjoyed answering them.

The program was to be shown on approximately 90 PBS stations across the country either live or on tape delay. Many educational networks broadcast the show via satellite. It is estimated that the PBS stations showing the program have the potential to reach more than 7 million students.

The following, passed on by online moderator, Eileen Bendixson, is from a teacher who viewed the program.

"Already read, printed, and prepared to share multiple copies with the kids. They're really excited about reading their answers—and from what I read, the answers were GREAT . . . and some very long. Really appreciate the time the experts took. Between the broadcast video and the answers alone, I have enough material for several days of class."

It appears the interactive program was a success. PBS will air another weather-related program on April 11. Bobby and Wayne may take part in that program as well.

Wayne Presnell, WCM, NWSO Key West, FL

Preparedness Month Features NWS

Washington State Governor Gary Locke has again proclaimed April as Disaster Preparedness Month. This campaign involves an "all-hazards" approach. Campaign highlights that involve NWS include videos and PSAs as well as using the following NWS publications:

- Moving Water: Adventure or Danger?
- Low Water Crossings - another OH video production
- Tsunami Warning and Evacuation.

Ted Buehner, WCM, NWSFO Seattle, WA

Publications and Audiovisuals

OM Releases Thunderstorms, Tornadoes, Lightning Brochure

A new 16-page tri-logoed brochure entitled, "Thunderstorms, Tornadoes, Lightning" (NOAA PA 99050) has been completed and is being printed. This publication combines two 12-page brochures: "Thunderstorms and Lightning" and "Tornadoes." These two 12-page brochures will not be reprinted but will be available on the Internet at **www.nws.noaa.gov/nwspub.html**. While the safety messages remain consistent, the brochure has a new look with some additional photos and facts. The initial printing will be 150,000 copies. Delivery date to the National Logistics Supply Center (NLDC) in Kansas City, MO, is scheduled for April 17, 2000. The maximum number you can order is 300 copies. Our thanks go to Jim Meyer, WCM, Quad Cities, who spent one week at NWS Headquarters getting this brochure off the ground.

Scott Kiser, Constituent Affairs Program Leader

New Hurricane Flooding Brochure

In the last 30 years, inland flooding has been responsible for more than half the deaths associated with tropical cyclones in the United States. When it comes to hurricanes, winds speeds do not tell the whole story. Hurricanes produce storm surges, tornadoes, and often the most deadly of all—inland flooding.

Hurricane Flooding: A Deadly Inland Danger is expected to be in stock at the NLDC by late April 2000. For single copies, see address in the next article or e:mail **larry.wenzel @noaa.gov**.

Larry Wenzel, Hydrologic Technician, OH

New Video "Water Work: Careers in Hydrology"

The complex world of hydrology has just been made easier to understand. If you only had 15 minutes to educate and encourage a junior or senior high student to become a hydrologist, this would be the video to use. Just as water gives life, it can be taken away by floods and droughts.

We need to understand how water works and how it will affect us. The video introduces the viewer to the hydrology discipline and what hydrologists do.

VHS copies of this video can be obtained by sending a $3.50 check or money order (for duplication, postage, and handling) payable to NOAA/National Weather Service. Send your requests to:

Water Work
NWS, Office of Hydrology
SSMC 2, Room 8115
1325 East-West Highway
Silver Spring, MD 20910

Send your e:mail questions to **larry.wenzel@noaa.gov**.

Larry Wenzel, Hydrologic Technician, OH

New Brochure: Saving Lives With All-Hazard Warning Network

A new high-quality color booklet, *Saving Lives with All-Hazard Warning Network*, explains how NWR can save lives as America's all-hazards network. It offers maps, graphics and easy-to-read text explaining the advantages and availability of NWR.

The booklet also discusses other new technologies, such as cell phones, digital television and the Internet. The booklet was prepared by the Multi-Agency Working Group of Vice President Gore's National Partnership for Reinventing Government. It makes a number of recommendations to enhance and expand coverage and improve use of NWR and other warning technologies.

Single copies are available from Linda Kremkau at 301-713-0090 x118 or Ken Putkovich at 301-713-0026 x191. Additional copies are available from NLSC as publication NOAA/PA 20050.

Ken Putkovich, NWR National Program Manager

Children's Disaster Safety Program in Works for Schools

The American Red Cross (ARC) is developing a children's disaster safety curriculum entitled Masters of Disaster. With the help of representatives from NWS and other organizations, a team of teachers this summer wrote lesson plans and activities for the curriculum. These materials will help teachers achieve state teaching performance

requirements in math, science, language arts and social studies through curriculum covering the hazards of earthquakes, hurricanes, floods, tornadoes, lightning, and, in general, family preparedness.

The curriculum was pilot tested during the fall of 1999 in 40 locations including Guam, Puerto Rico and 23 states, in small, medium, and large school districts. More than 380 teachers from 90 schools taught lessons from the curriculum and returned more than 650 evaluation forms. A Red Cross professional development team reviewed the forms and incorporated suggested changes into lesson plans and activities. The pilot testing was very successful and many teachers expressed great enthusiasm for the materials.

As of February 2000, staff was making final changes to lessons and activities throughout the curriculum as well as in producing several different videos that will support explaining the science of natural hazards to children on their level. ARC plans to release the curriculum this summer. As more information becomes available, we will post it to our Web site at **www.redcross.org/disaster/masters**. If you have further questions, please e:mail: **curric@usa.redcross.org**.

Rocky Lopes, Community Disaster Education
American Red Cross

1998 Summary of U.S. Natural Hazard Statistics On-Line

The NWS Office of Meteorology has posted Natural Hazard Statistics for 1998. Here are some highlights.

- Weather and flood-related hazards in 1998 claimed 687 lives, injured 11,171 persons, and cost more than $16 billion in property and crop damages.
- Extreme heat ranked as the #1 weather-related killer with 173 fatalities, outranking floods.
- Floods resulted in 136 deaths, followed by tornadoes with 130.
- The 10-year (1989-1998) average number of weather-related fatalities is 567.
- Of the 11,171 injuries, floods caused an astounding 6,440 injuries.
- Topping the damage list were tropical storms and hurricanes with $4.1 billion, and drought with $2.2 billion.
- States suffering more than a billion dollars in property damage included Puerto Rico, Florida, Minnesota and Texas.
- Of the 687 people who died because of severe weather, 449 were male and 233 were female, nearly twice as many males as females.
- The 30- to 49-year-old age group accounted for the largest number of fatalities with 199.
- July was the deadliest weather month with 121 fatalities attributed to excessive heat and flash flooding. Texas recorded the highest number of deaths with 122 from excessive heat and floods.
- Texas also had the highest number of injuries with 6,442, mainly from floods.
- The 30-year (1969-1998) average fatality rate for floods rose slightly from 140 in 1997 to 143 in 1998; lightning is 79; tornadoes, 69; and hurricanes, 24.
- The 10-year average for cold related fatalities is 38; for heat related fatalities, 144.

The statistics are online at **www.nws.noaa.gov/om/hazstats.htm**.

Linda Kremkau, Managing Editor

National Hurricane Awareness Week

NWS and FEMA are working together to have President Clinton sign a proclamation of Hurricane Awareness Week May 12-20, 2000. The proclamation highlights the devastating effects of Hurricane Floyd, inland flooding, rapid population growth in hurricane prone areas, and the forecast for the 2000 season. The proclamation is currently at the White House awaiting signature.

John Ogren, WCM Program Manager

Hurricane Awareness Weeks Scheduled in 2000

State	Event	Date
Eastern Region		
North Carolina	Hurricane	May 28-June 3
South Carolina	Hurricane	May 28-June 3
Virginia	Hurricane	June 4-10
Southern Region		
Alabama	Hurricane	May 22-26
Florida	Hurricane	June

Severe Weather Awareness Weeks Scheduled in 2000

State	Event	Date
Eastern Region		
Maryland/DC	Severe Weather	Apr. 23-29
New York	Severe Weather	Mar. 19-25
North Carolina	Severe Weather	Feb. 21-25
Ohio	Severe Weather	Mar. 5-11
	Drill	Mar. 8
Pennsylvania	Severe Weather	Mar. 19-25
South Carolina	Severe Weather	Feb. 21-25
Vermont	Severe Weather	Mar. 19-25
Virginia	Tornado Prep. Day	Mar. 28
West Virginia	Severe Weather	Mar. 19-31
Southern Region		
Alabama	Severe Weather	Feb. 21-25
Arkansas	Severe Weather	Feb. 20-26
	Drill	Feb. 24
Florida	Severe Weather	Feb. 21-25
	Drill	Feb, 24
Georgia	Severe Weather	Feb. 21-25
Louisiana	Severe Weather	Feb. 21-25
Mississippi	Severe Weather	Feb. 21-25
New Mexico	Severe Weather	Apr. 3-7
New Mexico	Flash Flood, Lightning	June 5-9
Oklahoma	Severe Weather	Mar. 5-11
Tennessee	Severe Weather	Feb. 21-25
Texas	Severe Weather	Mar. 5-11
Central Region		
Colorado	Severe Weather, Wildfire	Apr. 9-1
Illinois	Severe Weather	Mar. 12-18
Indiana	Severe Weather	Mar. 12-18
Iowa	Severe Weather	Mar. 27-31
Kansas	Severe Weather	Mar. 13-17
Kentucky	Severe Weather	Mar. 1-31
	Drill	Mar. 7
Michigan	Severe Weather	Mar. 26-Apr. 1
Minnesota	Severe Weather	Apr. 10-14
Missouri	Severe Weather	Mar. 13-17
		Mar. 14
Nebraska	Severe Weather	Apr. 3-17
	Drill	Apr. 5
North Dakota	Severe Weather	Apr. 17-21
South Dakota	Severe Weather	Apr. 17-21
	Drill	Apr. 19
Wisconsin	Tornado, Severe Weather	Apr. 10-14
	Drill	Apr. 13
Wyoming	Severe Weather	Apr. 17-21
Western Region		
Idaho	Severe Weather	Apr. 10-14
Montana	Severe Weather	Apr. 3-7

For up to date information on Awareness weeks, check out **www.nws.noaa.gov/om**.

Linda Kremkau, Managing Editor

Hazardous Weather and Flood Resource Guide Now Online

FEMA has placed the Hazardous Weather and Flooding Preparedness Resource Guide, which supports it course of the same name, in the FEMA Library at **www.fema.gov/library/toc.doc**. The guide contains NWS hazardous weather facts sheets and other materials designed to improve coordination between emergency management and NWS.

The course promotes proactive responses to weather and flood hazards. The class was developed by the NWS and FEMA staff with input and assistance from many state and local emergency managers.

Sam Isenberger, Emergency Management Institute

Weather Channel "Classroom"

The Weather Channel airs a series of programs offering insights into how weather happens. These commercial-free shows are 8 minutes long; they air from 4 a.m. to 4:30 a.m. The shows offer breaks for classroom discussion. Show topics are listed below. For online weather education, see **www.weather.com/education**.

- March 27, 30: Climate: A World of Weather
- April 3, 6: Extremes in the Water Cycle
- April 10,13: Sun, Seasons & the Sky
- April 17, 20: Air in Motion
  April 24, 27: The Science of Indoor Weather
- May 1, 4: The Social Studies of Indoor Weather
- May 8, 11: Look Up! Sky Awareness
- May 15, 18: Thunderstorms: The Weather Machine
- May 22, 25: Tornadoes
- May 29: Water: Oceans to Air
- June 1: Water: Oceans to Air
- June 5, 8: Hurricanes
- June 12, 15: Snow, Ice, Wind & Cold
- June 19, 22: Forecasting The Weather
- June 26, 29: Climate: A World of Weather

Laura Buss, The Weather Channel

New and Improved NWR Materials

The following page is an updated NWS publications list. Note that the list now includes the new 16-page hazards awareness booklet (NOAA PA 99050). Also two MSC charts (10 and 15) have new NOAA PA numbers. Remember that most of the Red Cross publications are out of stock at NLSC in Kansas City, MO, but local Red Cross chapters have some copies available for a small fee.

The following three publications have been reprinted and are available at NLSC.

- NOAA Weather Radio — NOAA PA 96070
- NOAA Weather Radio Frequency Pamphlet — NOAA PA 94061
- Saving Lives All Hazards Warning Network — NOAA PA 20050

Also, NWR decals in three sizes are available at NLSC. They are:

- NWR Decal (3" x 3") — NOAA PA 20051a
- NWR Decal (5" x 5") — NOAA PA 20051b
- NWR Decal (7" x 7") — NOAA PA 20051c

For information on the NWR publications and decals, please contact Stan Johnson at 301-713-1736x190. For information on other NWS publications, contact **linda.kremkau@noaa.gov** or call 301-713-0090x118.

Linda Kremkau, Managing Editor

Chapter Updates, Roster Now Online

Attachment A is the WSOM chapter updates. The WSOM chapters are now available to all NWS employees at **tgsv6.nws.noaa.gov/wsom/**. This site is meant for NWS employees. Please do **NOT** link this site from other Web sites.

Attachment B is the *Aware* Roster: a list of WCMs and SOOs in each NWS Region. Telephone numbers are *listed* numbers for an office, *NOT* the direct number. If you know of a name or telephone number change, please notify me at **melody.magnus@noaa.gov**. If you know someone who would like to receive the *Aware*, please have him or her contact Linda Kremkau at **linda.kremkau@noaa.gov**.

You can find the most up-to-date version of the WCM/SOO roster at **www.nws.noaa.gov/om/nwspub.htm**.

Melody Magnus, Editor

NWS Publications

NOAA PA	NAME
70027	Survival in a Hurricane (Wallet Card)
77014	Flash Flood (Wallet Card)
82002	Dust Storm Driving Safety (Wallet Card)
82004	Watch Out Storms Ahead
85001	Heat Wave (Out of print)
85002	Hawaiian Hurricane Safety Measures with Central Pacific Tracking Chart
85005	Tornado Safety Tips (Como Protegerse En Caso De Tornado) (WC)
85006	Survival in a Hurricane (Como Sobrevivir En Un Huracan) (Spanish 70027) (WC)
86001	Natural Hazard Watch & Warning Poster (English/Spanish)
91002	Winter Storms…The Deceptive Killers
91003*	Red Cross - Are You Ready for a Winter Storm? (Out of print)
91004	Red Cross - Are You Ready for a Winter Storm? (Spanish Version)
91005*	Red Cross Poster - Are You Ready for a Winter Storm? (English/Spanish)
92050	Flash Floods and Floods…The Awesome Power!
92051	SKYWARN Decal
92052 +	Tornadoes…Nature's Most Violent Storms
92053 +	Thunderstorms and Lightning…The Underrated Killers!
92054	FEMA's Emergency Preparedness Materials Catalog
92055	Advanced Spotter's Field Guide
92057*	Red Cross - Are You Ready for a Tornado? (Out of print)
92058	Red Cross - Are You Ready for a Tornado? (Spanish)
92059*	Red Cross - Are You Ready for a Flood or Flash Flood? (Out of print)
92060	Red Cross—Are You Ready for a Flood or a Flash Flood? (Spanish)
92061*	Red Cross Poster—Are You Ready for a Tornado? (English/Spanish)
93051*	Red Cross Poster—Are You Ready for a Thunderstorm? (Out of print)
93052	Red Cross—Are You Ready for a Thunderstorm? (Spanish)
93053*	Red Cross Poster—Are You Ready for a Thunderstorm? (English/Spanish)
93056	A Pilot's Guide to Aviation Weather Services (replaces PA 71005) (Booklet)
93059	A Change in the National Weather Service
93060	Spotter ID Card (Replaces 84001) (Out of print)
94050	Hurricanes . . . Unleashing Nature's Fury (Revised 3/96)
94052*	Red Cross—Are You Ready for a Heat Wave?
94053*	Red Cross—Are You Ready for a Hurricane?
94054	Red Cross—Are You Ready for a Hurricane? (Spanish)
94055*	Red Cross Poster—Are You Ready for a Hurricane? (English/Spanish)
94056	Red Cross—Are You Ready for a Heat Wave? (Spanish)
94057*	Red Cross Poster—Are You Ready for a Heat Wave? (English/Spanish)
94058	Safe Boating Weather Tips (Revised July 1998)
94059	River and Flood Program (Hydrologic Services Program)
94061	NOAA Weather Radio Frequency Pamphlet (Revised 3/00)
96051	National Centers for Environmental Prediction
96052	Key to New International Aerodrome Forecast (TAF) and New Aviation Routine Weather Report (METAR)(Card)
96054	MSC-1, Eastport, ME, to Montauk Point, NY
96057	MSC-4, Cape Hatteras, NC, to Savannah, GA
96058	MSC-5, Savannah, GA, to Apalachicola, FL
96061	MSC-8, Mexican Border to Point Conception, CA
96062	MSC-9, Point Conception, CA, to Point St. George, CA
99060	MSC-10, Point St. George, CA, to Canadian Border
96064	MSC-11/12, Great Lakes
96065	MSC-13, Hawaiian Waters
96066	MSC-14, Puerto Rico and Virgin Islands
99064	MSC-15, Alaska Waters
96068	MSC-16, Guam and the Northern Mariana Islands
96070	NOAA Weather Radio Brochure
96071	Atlantic Hurricane Tracking Map—8-1/2" x 11"
96072	Atlantic Hurricane Tracking Map—17" x 22" (Out of print)
96073	Pacific Hurricane Tracking Map—12" x 24"
96074E	The Hidden Danger—Low Water Crossing (English)
96074S	The Hidden Danger—Low Water Crossing (Spanish)
96076	ASOS Guide for Pilots (Booklet)
97050	Basic Spotters' Field Guide
98053	A Mariner's Guide to Marine Weather Services—Great Lakes
98054	A Mariner's Guide to Marine Weather Services—Coastal, Offshore and High Seas
99050	Thunderstorms, Tornadoes, Lightning
20050	Saving Lives With an All-Hazards Warning Network
20051a	NWR Decal (3" x 3")
20051b	NWR Decal (5" x 5")
20051c	NWR Decal (7" x 7")
0002	NOAA Brochure

+ Available in Braille. Contact your local NWS Office, Region, or Weather Service Headquarters.

* Available from your local Red Cross chapter only.

Marine Weather Service Charts (MSCs) can be found on the Web at:
www.nws.noaa.gov/om/marine/pub.htm

You can download most of these publications from:
www.nws.noaa.gov/om/nwspub

You can obtain a single copy by writing:
NWS/NOAA
1325 East-West Highway, Rm #14370
Silver Spring, MD 20910

National Weather Service
Slide Sets and Videotapes

The NWS slide sets and videotapes can be purchased from the National Audiovisual Center (NAC) at the address below.

National Technical Information Service
National Audiovisual Center (NAC)
5285 Port Royal Road, Rm. 1008
Springfield, VA 22161

Sales Desk -1-800-553-NTIS (6847) or 703-605-6000
Customer Inquiry: 703-605-6050
Fax: 703-605-6900 or 1-888-584-8332
Web site: www.ntis.gov
Handling fee: $4 per order.

The NWS slide sets and presenter's guides available from NAC are:

NAME	STOCK NO.	COST
Winter Storms...The Deceptive Killers	AVA19250.SS00	$100
Tornadoes...Nature's Most Violent Storms	AVA19540.SS00	$95
Thunderstorms and Lightning...The Underrated Killers	AVA19778.SS00	$105
Hurricane Hugo	AVA18529.SS00	$130
Hurricane Andrew	AVA19393.SS00	$95
Advanced Met. Spotter Training Slides	AVA17568.SS00	$155
Concepts of Severe Storm Spotting	AVA19930.SS00	$110
Flash Floods and Floods...The Awesome Power	AVA19997.SS00	$120

The NWS videotapes available from NAC are:

"Terrible Tuesday," 1/2" VHS/23 minutes/color/1984	AVA11945.VNB1	$50
"Hurricane," 1/2" VHS/28 minutes/color/1985	AVA12440.VNB1	$50
"The Awesome Power," 1/2" VHS/17 minutes/color/1988	AVA17096.VNB1	$50

Most of these videotapes and slide sets can be borrowed for presentations or school talks from Weather Service Headquarters (address below). For availability of these audiovisual materials, please contact Linda Kremkau, Customer Service, WSH, at 301-713-0090 x118.

National Weather Service, NOAA
1325 East-West Highway, Rm. 14370
Silver Spring, Maryland 20910

Other videotapes available from Customer Service are:

"Moving Water: Adventure of Danger" 1/2" VHS/18 minutes/NWS Office of Hydrology/1999
"The Hidden Danger—Low Water Crossings," 1/2" VHS/8 minutes/NWS Office of Hydrology/1996/ ***Now also in Spanish***
"StormWatch," 1/2" VHS/30 minutes/copyright by TESSA/1995
"Surviving the Cold," 1/2" VHS/16 minutes/American Red Cross Video Network/1989
"Minneapolis Tornado," 1/2" VHS/12 minutes/copyright by KARE-TV/1986

Those interested in using portions of the NWS videotapes should contact our NOAA Video Studio at 301-713-1479.

Attachment A—Update on OM's WSOM Chapters

A-10 **Station Management**
Awaiting Union review.

A-40 **Service Change Process**
Chapter effective Dec. 28, 1999.

A-63 **Service Evaluation**
Chapter effective Dec. 21, 1999.

A-99 **General Weather Service Definitions**
OML issued September 2, 1999.

B-16 **Marine Reporting Station**
No updates before 2000.

B-19 **Fire Weather Stations**
Will be updated and consolidated with D-06 in 2000.

B-30 **Voluntary Observing Ship Program**
Due in 2001.

B-90 **Special Warning Program Observations**
To be updated in 2000.

C-11 **Zone and Local Forecasts and Appendix A** (maps)
Due December 2000.

C-40 **Severe Local Storm Watches, Warnings and Statements**
To be updated coinciding with Watch by County in 2001.

C-41 **Tropical Cyclone Program**
In field for review.

C-42 **Combined Winter Storm and Non Precip Hazards**

C-44 OML under development; due in 2000.

C-43 **Coastal Flood Program**
Due in 2000.

C-45 **Meteorological Discussions and Forecast Coordination**
An OML to C-45 defining the state liaison office policy is being drafted for field review in 2000.

C-47 **County Warning Areas, Appendix A**
To be updated in 2000.

C-49 **Warning Coordination and Hazard Awareness**
Signed in January.

C-50 **Customer and Partner Outreach**
Chapter effective January 14, 2000.

C-60 **Radio/TV Dissemination**;

C-61 **Telephone Dissemination**;

C-62 **Newspaper Dissemination**;
Will begin updating and probably consolidating in 2000.

C-63 **NOAA Weather Wire Service (NWWS)**
Update due 2000.

C-64 **NOAA Weather Radio Program**
Chapter effective December 21, 1998.

C-66 **Dissemination of Public Warnings**
Will probably be consolidated with C-67 in 2000.

C-67 **News Wire Dissemination**
Will probably be consolidated with C-66 in 2000.

C-75 **National Verification Program**
To be finalized April 2000.

D-06 **Fire Weather Services**
Will be updated in 2000 and consolidated with B-19, D-06, OML: Duties of IR Mets Requiring Exposure to Hazardous Situations.

D-07 **Marine Weather Services**
To be updated in 2000.

D-20 **Aviation Area Forecasts**
OMLs effective November 5, 1998 (backup) and December 14, 1998 (new VOR chart). Will begin updating chapter possibly combining with D-35 in 2001. New WMO headers/AFOS PILs for new areas being developed.

D-22 **Domestic SIGMET**
OMLs effective November 5, 1998 (backup) and December 14, 1998 (new VOR chart). Currently working on updating chapter combining D-22 and D-38.

D-23 **Special Aviation Forecasts and Events**

D-24 **Wind and Temperature Aloft Forecasts**
Final draft of new chapter in coordination/review awaiting FAA approval.

D-25 **Air Traffic Operations Support**
OML effective December 14, 1998 (new VOR chart).

D-30 **Transcribed Weather Broadcast Text Products**
OML effective Nov. 5, 1998.

D-31 **Aviation Terminal Forecasts**
Page changes effective Nov. 5, 1998.

D-35 **International Area Forecasts**
Should be combined with D-24; timing to be determined.

D-36 **International/Aviation Service Arrangements**
Should be combined with D-24; timing to be determined.

D-38 **International SIGMET**
Currently working on updating chapter combining D-22 and D-38. New WMO headers/AFOS PILs for new areas being developed.

D-51 **Marine Services for Coastal, Offshore and High Seas, Appendix B**
Changes effective Nov. 30, 1999.

D-52 **Marine Services for the Great Lakes**
OML effective Sept. 15, 1999.

D-80 **Familiarization Flights**
Under development.

D-82 **Training Program for Pilot Weather Briefers**
Regional reviews of proposed revision received December 1998. Waiting for decision and funding commitments to implement alternate proposal to complete NWS PWB evaluations/certification responsibilities.

D-90 **Support for Accident Investigation and Litigation**
Transmittal Memo issued July 15, 1997, #97-8.

D-91 **Aviation Liaison and User Support Program**
Preliminary work to update, adjust and reassign the contents of these chapters has been completed. Awaiting resources to complete the job.

F-42 ***Storm Data* and Related Reports**
An OML has been released to accommodate changes associated with Paradox II the new *Storm Data* software. Other minor changes also have been included.

F-60 **Tsunami Warning Service**
OML issued effective April 1998.

F-61 **Earthquake Reporting Program**
Chapter issued March 6, 1996.

J-02 **Significant Hydrometeorological Events, Post-Storm Data Acquisition, and Service Assessments**
Chapter issued Sept. 28, 1998.

J-05 **Backup Operations**
Draft to be issued May 2000.

J-08 **Nuclear Emergency Response**
Chapter update in 2000.

Attachment B–WCM/SOO Roster

WCM	SOO	SID	Location	Telephone

NWS Headquarters

John Ogren, National WCM Program Manager 301-713-0090 x140
Eli Jacks, National SOO Program Manager 301-713-1970 x188

Eastern Region

Rick Watling, Regional (Focal) WCM Program Manager 631-244-0123
Kenneth Johnson, Regional SOO Program Manager 631-244-0136
Solomon Summer, HSD Chief 631-244-0111

Dick Westergard	Warren Snyder	ALY	Albany, NY	518-435-9568
Barbara Watson	Steve Zubrick	LWX	Baltimore, MD/Washington, DC	703-260-0107
Dave Nicosia	Jeff Waldstreicher	BGM	Binghamton, NY	607-770-9531
Glenn Field	James Lee	BOX	Boston, MA	508-823-1900
Stan Levine	Ed Mahoney	BUF	Buffalo, NY	716-565-0204
Stephen Hogan	Paul Sisson	BTV	Burlington, VT	802-862-2475
Hendricus Lulofs	Dan Cobb	CAR	Caribou, ME	207-496-8931
Tom Dunham	Rich Grumm	CTP	Central Pennsylvania, PA	814-234-9412
Jerry Harrison	Steven Brueske	CHS	Charleston, SC	803-744-3207
Dan Bartholf	Dan Luna	RLX	Charleston, WV	304-746-0173
Mary Jo Parker	John DiStefano	ILN	Cincinnati, OH	937-383-0031
Gary Garnet	Robert LaPlante	CLE	Cleveland, OH	216-265-2370
Steve Naglic	Michael Cammarata	CAE	Columbia, SC	803-765-5501
Vince DiCarlo	Larry Lee	GSP	Greenville-Spartanburg, SC	864-848-1332
Tom Kriehn	Carin Goodall	MHX	Morehead City, NC	919-223-5122
Gary Conte	Jeff Tongue	OKX	New York City, NY	631-924-0037
Joe Miketta	Alan Cope	PHI	Philadelphia, PA	609-261-6600
Rich Kane	Josh Korotky	PBZ	Pittsburgh, PA	412-262-1591
John Jensenius	Joseph Fred Ronco	GYX	Portland, ME	207-688-3216
George Lemons	Kermit Keeter	RAH	Raleigh/Durham, NC	919-515-8209
Mike Emlaw	Steve Keighton	RNK	Roanoke, VA	540-552-0084
Bill Sammler	Hugh Cobb	AKQ	Wakefield, VA	757-899-4200
Tom Matheson	Reid Hawkins	ILM	Wilmington, NC	910-762-4289

Southern Region

Gary Woodall, Regional WCM Program Manager 817-978-2812 x106
Bernard Meisner, Regional SOO Program Manager..... 817-978-2671
Dave Morris, HSD Chief 817-978-2674

Keith Hayes	Deirdre Kann	ABQ	Albuquerque, NM	505-243-0702
Steve Drillette	Richard Wynne	AMA	Amarillo, TX	806-335-1121
Barry Gooden	Gary Beeley	FFC	Atlanta, GA	770-486-1333
Larry Eblen	Jim Ward	EWX	Austin/San Antonio, TX	830-629-0130
Brian Peters	Kevin Pence	BMX	Birmingham, AL	205-664-3010
Hector Guerrero	Shawn Bennett	BRO	Brownsville, TX	210-504-3354
Terry Huber	Andy Patrick	CRP	Corpus Christi, TX	512-289-0959
Jim Stefkovich	Mike Foster	FWD	Dallas/Fort Worth, TX	817-429-2631
John Fausett	Val MacBlain	EPZ	El Paso, TX	505-589-4088
Gene Hafele	Steve Allen	HGX	Houston/Galveston, TX	281-337-5074
James Butch	Alan Gerard	JAN	Jackson, MS	601-936-2189
Fred Johnson	Pat Welsh	JAX	Jacksonville, FL	904-741-4370
Howard Waldron	Steve Parker	MRX	Knoxville/Tri-Cities, TN	423-586-9040
Wayne Presnell	Jack Settelmaier	EYX	Key West, FL	305-295-1316
Roger Erickson	Felix Navejar	LCH	Lake Charles, LA	318-477-5285
John Robinson	George Wilken	LZK	Little Rock, AR	501-834-9102
Larry Vannozzi	Loren Phillips	LUB	Lubbock, TX	806-745-4260
Dennis Decker	Dave Sharp	MLB	Melbourne, FL	407-255-0212

WCM	SOO	SID	Location	Telephone
John White	Jerry Rigdon	MEG	Memphis, TN	901-544-0399
Jim Lushine	Jack Gross	MFL	Miami, FL	305-229-4522
George Mathews	Brian Francis	MAF	Midland/Odessa, TX	915-563-5006
Gary Beeler	Jeff Medlin	MOB	Mobile, AL	334-633-6443
Jerry Orchanian	Henry Steigerwalt	OHX	Nashville, TN	615-754-8506
Frank Revitte	Mike Koziara	LIX	New Orleans/Baton Rouge, LA	504-522-7330
Jim Purpura	Dave Andra	OUN	Oklahoma City, OK	405-366-6583
Buddy McIntyre	Greg Jackson	SJT	San Angelo, TX	915-944-9445
Rafael Mojica	Rachel Gross	SJU	San Juan, PR	787-253-4586
Bruce Burkman	Ken Falk	SHV	Shreveport, LA	318-631-3669
Bob Goree	Irv Watson	TAE	Tallahassee, FL	904-942-8999
Walt Zaleski	Charles Paxton	TBW	Tampa Bay Area, FL	813-645-2323
Steve Piltz	Steve Amburn	TSA	Tulsa, OK	918-832-4115

Central Region

Joe Sullivan, Regional WCM Program Manager				**816-426-3239 x703**
Preston Leftwich, Regional SOO Program Manager				**816-426-5672**
Ken King, HSD Chief				**816-426-3220**
George Marshall	Ken Harding	ABR	Aberdeen, SD	605-225-5547
Daniel Noah	Viggo Jensen	BIS	Bismarck, ND,	701-250-4224
John Griffith	David Copley	CYS	Cheyenne, WY	307-772-2468
Jim Allsopp	Ken Labas	LOT	Chicago, IL	815-834-0600
James Meyer	Ray Wolf	DVN	Davenport, IA	319-391-6729
Robert Glancy	Eric Thaler	BOU	Denver/Boulder, CO	303-361-0661
Jeffrey Johnson	Karl Jungbluth	DMX	Des Moines, IA,	515-270-4501
Darin Figurskey	Dick Wagenmaker	DTX	Detroit, MI	248-625-3309
Jeff Hutton	Steve Hunter	DDC	Dodge City, KS	316-227-7140
Carol Christenson	Gary Austin	DLH	Duluth, MN	218-729-0651
Jim Belles	Phillip Schumacher	FGF	Eastern North Dakota, ND	701-772-0720
Kevin Lynott	Llyle Barker	GLD	Goodland, KS	785-899-7119
James Pringle	Michael Meyers	GJT	Grand Junction, CO	970-243-7007
Mike Heathfield	*Vacant*	GRR	Grand Rapids, MI	616-956-5922
Jeff Last	Eugene Brusky	GRB	Green Bay, WI	920-494-5845
Steve Kisner	Rick Ewald	GID	Hastings, NE	402-462-2127
David Tucek	John Kwiatkowski	IND	Indianapolis, IN	317-856-0361
Jim Keeney	Michael Lewis	JKL	Jackson, KY	606-666-4856
Bill Bunting	Peter Browning	EAX	Kansas City/Pleasant Hill, MO	816-540-5147
Todd Shea	Dan Baumgardt	ARX	LaCrosse, WI	608-784-8275
Rod Palmer	Jeff Hedges	ILX	Lincoln, IL	217-732-4029
Norman Reitmeyer	Ted Funk	LMK	Louisville, KY	502-969-8842
Jack Pellett	Ed Fenelon	MQT	Marquette, MI	906-475-5782
Rusty Kapela	John Eise	MKX	Milwaukee/Sullivan, WI	414-297-3243
Todd Krause	Richard Naistat	MPX	Minneapolis, MN	612-361-6670
Gene Bowman	*Vacant*	LBF	North Platte, NE	308-532-4936
Brian Hirsch	Bruce Smith	APX	NC Lower Michigan	517-731-3384
Jane Hollingsworth	Julie Adolphson	IWX	Northern Indiana	219-834-5178
Brian Smith	Steve Byrd	OAX	Omaha, NE	402-359-2394
Ricky Shanklin	Pat Spoden	PAH	Paducah, KY	502-744-6440
Tom Magnuson	Paul Wolyn	PUB	Pueblo, CO	719-948-9429
Susan Sanders	Brian Klimowski	UNR	Rapid City, SD	605-341-9271
Donald Noll	Derek Frey	RIW	Riverton, WY	307-857-3898
Todd Heitkamp	Ron Holmes	FSD	Sioux Falls, SD	605-330-4247
Steve Runnels	David Gaede	SGF	Springfield, MO	417-863-1456
Jim Kramper	Ron Przybylinski	LSX	St. Louis, MO	636-447-1876
Mike Akulow	George Phillips	TOP	Topeka, KS	785-232-1493
Chance Hayes	Peter Wolf	ICT	Wichita, KS	316-942-8483

Western Region

Tom Ainsworth, Regional WCM Program Manager 801-524-4000
Andy Edman, Regional SOO Program Manager 801-524-5131
Bob Tibi, HSD Chief 801-524-5137

Stephen Kuhl	Keith Meier	BYZ	Billings, MT	406-652-0851
Carl Weinbrecht	David Billingsley	BOI	Boise, ID	208-334-9860
Jim Dudley	Steve Apfel	LKN	Elko, NV	775-738-3018
John Lovegrove	Mel Nordquist	EKA	Eureka, CA	707-443-6484
Tyree Wilde	Michael Staudenmaier	FGZ	Flagstaff, AZ	520-556-9161
Kimberly Bailey	Eugene Petrescu	GGW	Glasgow, MT	406-228-2850
Rick Dittman	David Bernhardt	TFX	Great Falls, MT	406-453-2081
Ron McQueen	Kim Runk	VEF	Las Vegas, NV	702-263-9744
Tim McClung	Dave Danielson	LOX	Los Angeles, CA	805-988-6610
Jim Reynolds	Dennis Gettman	MFR	Medford, OR	541-773-1067
Peter Felsch	Tim Barker	MSO	Missoula, MT	406-329-4841
Dennis Hull	Jon Mittelstadt	PDT	Pendleton, OR	541-276-7832
David Runyun	Doug Green	PSR	Phoenix, AZ	602-379-4611
Vern Preston	Dean Hazen	PIH	Pocatello/Idaho Falls, ID	208-233-0834
Dan Keeton	Bill Schneider	PQR	Portland, OR	503-261-9247
Roger Lamoni	Mary Cairns	REV	Reno, NV	775-673-8107
Kathy Hoxsie	Scott Cunningham	STO	Sacramento, CA	916-979-3041
Dave Toronto	Larry Dunn	SLC	Salt Lake City, UT	801-524-5113
Ed Clark	Ivory Small	SGX	San Diego, CA	858-297-2107
Charles Morrill	Dr. Warren Blier	MTR	San Francisco Bay Area, CA	831-656-1725
Dan Gudgel	Larry Greiss	HNX	San Joaquin Valley	559-584-0583
Ted Buehner	Brad Colman	SEW	Seattle/Tacoma, WA	206-526-6095
Ken Holmes	Ron Miller	OTX	Spokane, WA	509-244-0110
Paul Flatt	David Bright	TWC	Tucson, AZ	520-670-5156

Alaska Region

Greg Matzen, Regional WCM Program Manager 907-271-3507
Gary Hufford, Regional SOO Program Manager 907-271-3886
Jerry Nibler, HSD, HIC Chief 907-266-5151

David Goldstein	Carven Scott	AFC	Anchorage	907-266-5117
John Lingaas	Kraig Gilkey	AFG	Fairbanks	907-458-3712
Robert Kanan	Carl Dierking	AJK	Juneau	907-790-6803
Bruce Turner	*(no SOO position)*		Palmer (ATWC)	907-745-4212

Pacific Region

Mark Jackson, Regional WCM/SOO Program Manager 808-532-6413
Kevin Kodama, Regional Hydrologist 808-973-5270

Thomas Heffner	Paul Jendrowski	HFO	Honolulu, HI	808-973-5275
Tom Tarlton	Frank H. Wells	GUA	Tiyan, Guam	671-472-7423
Akapo Akapo		ASO	Pago Pago (Focal)	684-699-9130

NCDC

Stuart Hinson ..... Asheville, NC 828-271-4437

NCEP

Stacy Stewart	Dr. Jiann-Gwo Jiing	TPC	Miami, FL	305-229-4463
Vacant	Peter Manousos	HPC	Camp Springs, MD	301-763-8000x7307
Vacant	James Partain	MPC	Camp Spring, MD	301-763-8097
Ron Olson	Fred Mosher	AWC	Kansas City, MO	816-584-7237
Dan McCarthy	Bob Johns	SPC	Norman, OK	405-579-0700

Aware

Aware is issued by the National Oceanic and Atmospheric Administration to keep communications lines open within the Agency and with the natural hazards community

Winter/Spring 2000

Service, Science, and Technology

The Next Level of Service: Just Do It!

Although we are in a service-related economy, good service is hard to find. Sales clerks rarely know their products. Persons identified as customer service representatives rarely have authority to solve problems. The National Weather Service (NWS) is different. Our field office network uniquely positions us close to our customers and partners. We have the authority to solve problems. When it comes to providing service, our attitude should be "Just do it!"

Providing excellent service requires us to be clear on who are our customers and partners. Our customers are the tax paying public who want accurate, timely and credible weather, water, and climate information. Our partners are organizations, both public and private, who work with us to provide our mutual customers with the information they need.

Speaking With Authority

Our mission statement enables us to speak with authority when dealing with our customers and partners. Everyone must be able to articulate our mission. It is the key to unlocking service-related issues. The mission is boldly stated on page 2 of our Strategic Plan. Paraphrased, it says that we provide weather, water and climate warnings and forecasts for the protection of life and property as well as the enhancement of the economy. When contemplating a service issue, if it relates to our mission, "Just do it!" If not, don't do it.

In this environment, the term "value added" has no meaning. We should use any technology and any format to communicate effectively. Concerning the enhancement of the economy, we should create services for whole communities of customers and partners. Individual solutions for specific entities is the role of the private sector.

Consider a stock car race in a local office's forecast area. Race forecasts and specific venue forecasts are clearly the role of the private sector. The local office should meet with officials before the event to apprise them of routine NWS services as well as NOAA Weather Radio (NWR) and other NWS dissemination sources for warnings. If a warning is required, the venue should be mentioned. If the local office has a point of contact at the venue, they should notify them. It's mission related, it's our job, "Just do it!"

We are an action-oriented agency. Our name is service. Knowing our mission provides us the authority to make local decisions. We are expected to make things happen. Let's take the NWS to a new level of service. It is within our power, let's do it!

Gregory Mandt, Acting Director
Office of Meteorology

Inside Aware

CUSTOMER SERVICE

NWS-FEMA Offer Four EM Classes

Over the past several years, staff at NWS and the Federal Emergency Management Administration (FEMA) have collaborated to produce four courses for emergency managers. These courses are typically presented by a WCM and emergency manager. The following is a list of the courses and a brief description of each.

- **Partnerships for Creating and Maintaining Spotter Groups:** The course offers WCMs and emergency managers tips on jointly creating new or improved spotter groups. The workshop gives participants the necessary awareness and tools to strengthen the spotter network.

- **Hazardous Weather and Flood Preparedness:** This course is intended to improve coordination between emergency management and NWS. The goal is to promote more proactive responses to weather and flood hazards. The course was developed by the NWS and FEMA staff with input and assistance from many state and local emergency managers.

- **Warning Coordination:** This course identifies warning coordination and communication needs based on event type and the threat the event poses to the community. Working with members of the media, you will develop a strategy to ensure effective dissemination of warning messages. It is strongly recommended that all participants first attend the "Hazardous Weather and Flood Preparedness."

- **Community Hurricane Preparedness:** The purpose of this is to provide EMs and other decision makers who cannot attend the course with basic information about how hurricanes form, the hazards they pose, how the NWS forecasts future hurricane behavior, and what tools can help EMs prepare their communities. This course is also available on CD or the Web at **meted.ucar.edu/hurrican/chp/index.htm**.

For more information or course materials, contact John Ogren at 301-713-0090 ext. 140 or **John.Ogren @noaa.gov.**

John Ogren, WCM Program Manager

Drought Forum Showcases Public Info Packet, Cross State Issues

The National Disaster Education Coalition (NDEC), a federation of public and private organizations dedicated to providing outstanding education materials and information on natural hazards, sponsored a 1-day Drought Forum. The goal of the forum was to produce a consistent information package on drought for the general public. NDEC will use information gathered during the forum to write information about drought for the public. In addition to explaining drought and its effects, the information will outline steps individuals, families and communities should take before and during a drought. The information is intended to be generic and supplemented by region or event-specific materials prepared by other organizations.

The 1-day workshop was held on February 17 at NWS Headquarters. Approximately 75 people attended the forum. Participants were asked to identify key points about the impacts of a drought on daily life, economics, agriculture, the environment, and ultimately, on the health of people, plants and animals, and water supply systems. Participants were encouraged to provide their expertise on drought-related publications and to identify handouts available from organizations and agencies.

Bruce Romer, Chief Executive Officer of Montgomery County, MD, was the first keynote speaker. Drought was severe in Maryland and the DC suburbs in the summers of 1998 and 1999. Romer discussed how to deal with drought

Aware

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Gregory Mandt, Chief, Science Division
LeRoy Spayd, Chief, Science and Training
Vacant, Chief, Tech./Fcst. Systems

***Aware* in PDF—www.nws.noaa.gov/om/nwspub.htm**
***AwareNow*: frequently updated html version: www.nws.noaa.gov/om/awarenow.htm**

in a multi-jurisdiction and multi-state situation where public information and recommended actions are inconsistent and conflicting. His presentation provided the stimulus for five morning break-out sessions, addressing drought impacts on water resources, agriculture, wildlife, environment and public health.

Dr. Fran Winslow, Director of Emergency Services, San Jose, CA, was the second featured speaker. Dr. Winslow focused on daily life styles of people living in California who practice water conservation routinely. Getting the public to respond to water conservation required identifying "Public Hot Buttons to Drought." Topics to induce public awareness and mitigation towards drought included: clean water/diseases, multi-lingual messages, personal hygiene, and impacts to the elderly. A one-page hand-out, "Surviving the Drought" contained many useful, practical tips for saving water around the house.

The afternoon sessions focused on preparedness and mitigation aspects of drought and defining what to communicate to the public.

Ron Gird, NWS Outreach Manager
Rocky Lopes, American Red Cross

Partners Workshop To Focus on Improved Service Delivery

The next "NWS Partners Workshop" is scheduled for April 26 at NWS Headquarters. An invitation letter was sent to potential attendees requesting their ideas for topics. When these ideas are received, the agenda will be finalized and a fact sheet prepared for attendees. The fact sheet will ensure there are fewer presentations and more discussions that will improve service delivery. To get updated information on the workshop, go to **www.nws.noaa.gov/om**.

Ron Gird, NWS Outreach Manager

OM Creates Severe/Winter Weather Awareness Web Pages

In October 1999, OM created the Winter Weather Awareness Web page. This page provides "one-stop shopping" for winter weather awareness and preparedness information. The page contains links to awareness and preparedness guides, forecasts, warnings, climate information, outlooks, billion-dollar winter storms, transcripts of an online winter weather chat with NWS meteorologists, and a calendar of winter weather awareness events in various states: **www.nws.noaa.gov/om/winter/index.html**.

In January 2000, OM remodeled the Severe Weather Awareness Web page. This page focuses on thunderstorms, tornadoes and floods. It contains links to awareness and preparedness guides, forecasts, warnings, climate information, outlooks, billion dollar severe storms, post storm assessments, and a calendar of severe weather awareness events in various states. Check out the page at **www.nws.noaa.gov/om/svrawar/svrwx.htm**.

Mike Gerber, Meteorologist

When Seconds Count, StormReady Communities Are Prepared

On March 2, NWS Director Jack Kelly officially launched StormReady as a national program at a press conference in Norman, OK. The press conference was covered by CNN, CBS, USA Today, AP, and numerous local media outlets.

The top goal of StormReady is to prepare communities with an action plan that responds to the threat of all types of severe weather—from tornadoes to tsunamis. StormReady was a voluntary program created in 1998 by the NWSFO Tulsa, OK. The program provides clear-cut advice to city leaders and emergency managers and media aimed at improving response to local hazardous weather operations.

An advisory board, comprised of NWS warning coordination meteorologists, and state and local emergency managers, will review applications from municipalities and visit the locations to verify the steps made in the process to become StormReady. After the advisory board approves certification, the community will receive a formal letter, along with StormReady signs that can be displayed along its major roadways. StormReady communities must remain vigilent because the designation is only valid for 2 years. The advisory board seeks to officially designate 20 communities as StormReady each of the next 5 years.

For more information about the StormReady program, go to **www.nws.noaa.gov/stormready**.

John Ogren, WCM Program Manager

INTEGRATED HYDROMETEOROLOGICAL SERVICES

Great Lakes Marine Products Enhanced in Three Areas

On September 15, NWS offices responsible for the Great Lakes Open Lake Forecast added three new features to their forecasts: a synopsis, 4th period forecast and 3-5 Day Outlook.

The offices also now headline gale and/or storm force winds expected in ***any*** period of the forecast, excluding the outlook. The five WFOs responsible for the Open Lake marine product are:

- WFO Marquette, Lake Superior
- WFO Chicago, Lake Michigan
- WFO Detroit, Lake Huron and Lake St. Clair
- WFO Cleveland, Lake Erie
- WFO Buffalo, Lake Ontario, St. Lawrence River.

The Lake Carriers Association reported favorable comments by carrier captains on the changed Open Lake forecast.

All 10 Great Lakes NWS offices will continue to be responsible for Near Shore Forecasts, Special Marine Warnings, Lake Shore Warnings, and Marine Weather Statements for their areas.

Richard May, Acting Program Manager, Marine Weather Services

NWS Completes Coastal Marine Service Transfers

NWS completed the last of the coastal marine forecast (CWF) service transfers on December 1, 1999. On that date NEXRAD Weather Service Office (NWSO) Caribou, ME, assumed full warnings and forecast responsibility for a portion of Maine waters from NWSFO Portland, ME. This transfer ended a year-long process of marine service transfers to the future marine Weather Forecast Offices (WFOs). The major transfers included:

- **Eastern Region:** On December 1, 1998, NWS offices in Washington, DC/Baltimore, MD; Raleigh/Durham, NC; Columbia, SC; and Miami, FL; transferred marine responsibility to offices in Wakefield, VA; Newport, NC; Wilmington, NC; and Charleston, SC.
- **Central Region:** On April 6, 1999, Open Lake responsibility for Lake Superior moved from NWSFO Chicago, IL, to NWSO Marquette, MI.
- **Western Region:** On May 4, 1999, NWS offices in Los Angeles, CA; San Francisco, CA; and Portland, OR; transferred marine responsibilities to offices in San Diego, CA; Eureka, CA; and Medford, OR.
- **Southern Region:** Transfers were performed in three phases:
  - On March 15, 1999, most Texas and some Florida coastal marine zones moved from Miami FL; San Antonio, TX; and Fort Worth, TX; to Melbourne, FL; Houston, TX; Corpus Christi TX; and Brownsville, TX.
  - On July 15, 1999, east Texas and southwest Louisiana zones moved from San Antonio and New Orleans to Lake Charles LA.
  - On November 15, 1999, Alabama, Mississippi and most Florida coastal marine zones shifted from offices in New Orleans, LA, and Miami, FL, to Mobile, AL; Tallahassee, FL; Tampa Bay, FL; Key West, FL; and Jacksonville, FL.

Maps of the reconfigured coastal marine zones and responsible WFOs are posted on the Web page at **www.nws.noaa.gov/om/marine.htm.** Descriptors and other details are listed in the Weather Service Operations Manual (WSOM) Issuance 00-04 (new Appendix B to WSOM D-51) or online at **www.nws.noaa.gov/om/appendix-b.pdf**.

Richard May, Acting Program Manager, Marine Weather Services

Coastal and Offshore Marine Forecasts Now Issued on NAVTEX

On November 30, 1999, the Marine Prediction Center (MPC) and Tropical Prediction Center (TPC) began issuing a new specialized product for the nine U.S. Coast Guard (USCG) NAVTEX transmitters on the Continental United States and Puerto Rico:

Boston, MA	New Orleans, LA
Chesapeake, VA	Cambria, CA
Savannah, GA	Pt. Reyes, CA
Miami, FL	Astoria, OR
San Juan, PR	

The new NAVTEX product is a combination of the Coastal and Offshore marine forecast products. It contains a synopsis, warnings and forecasts for gales, storms, hurricanes and tropical storms. The NAVTEX product meets the United States obligations under the International Safety of Life at Sea conventions.

NAVTEX is a 100 baud radio-teletype broadcast (518 kHz) of urgent marine safety information, including warnings and forecasts, to ships worldwide. In the United States and its territories, the U.S. Coast Guard broadcasts NAVTEX from 12 of its facilities over large portions of the Atlantic, Pacific, Gulf of Mexico and Caribbean waters. The NAVTEX products were not required for the transmitters in Alaska, Hawaii and Guam.

To solve the NAVTEX issue, in early 1999, NWS Headquarters formed a team from Southern, Western, Eastern and Alaska regions, and the MPC and TPC. The team recommended a new NAVTEX product designed specifically for each of nine USCG NAVTEX transmitters around the Continental United States and Puerto Rico.

We appreciate the hard work on the NAVTEX issue done by the forecasters at MPC and TPC and are grateful for the valuable input provided to us by the regions.

Richard May, Acting Program Manager
Marine Weather Services

Flood Prediction Program Gets Budget Backing

The NOAA's FY 2000 budget includes $1 million for implementation of the Advanced Hydrologic Prediction Service (AHPS), an advanced river forecast initiative.

"AHPS is an essential component of the NWS's suite of weather, water and climate services," said NWS Director John J. Kelly Jr. "National implementation of AHPS will save lives and an estimated $200 million per year in flood losses and an additional $400 million per year in economic benefits to water resource users."

The system will provide more information and visual displays to help local managers make better water management decisions. New products will depict the magnitude and uncertainty of river flow events forecasted days and even weeks in the future. The system includes a combination of software and hardware tools used for analyzing data and creating graphical displays of probability forecasts.

AHPS builds on NOAA's other technologies, such as Doppler weather radars, satellites, supercomputers, weather observation stations, and the new interactive weather computer and communications system, the Advanced Weather Interactive Processing System (AWIPS).

Following the Great Flood of 1993 in the Midwest, the Des Moines River Basin was selected as the initial AHPS demonstration site. This proved to be a significant benefit to local water resource and emergency managers. During FY 2000, the agency will begin implementing AHPS in the upper Midwest, including Wisconsin, Minnesota, Michigan, Illinois and portions of Iowa, Missouri and North Dakota, as well as tributaries in the Ohio River basin flowing into Kentucky, West Virginia, Ohio and western Pennsylvania.

"River forecasting is critical to public safety," declared Kelly. "In an average year, more than 130 people are killed by flooding and flash flooding, and flood-related damages exceed $3.5 billion. AHPS provides more information than current forecasts. As a result, people will have more time to plan to protect themselves and their property." Agency officials said the system can also be of tremendous value to water managers in planning for possible droughts. Users will obtain graphical products for forecast periods several months in the future and will be better able to make informed decisions.

Susan Weaver, NWS Public Affairs

TECHNOLOGY AND FORECAST SYSTEMS

AWIPS Adds Rapid Prototype Project to Suite of Tools

The Interactive Forecast Preparation System (IFPS), developed by the Techniques Development Laboratory (TDL) and the Forecast Systems Laboratory (FSL), helps NWS staff prepare forecast products from a digital database. NWS will implement IFPS nationwide beginning with AWIPS Build 5.

NWS is testing a new IFPS activity, the Rapid Prototype Project (RPP), at seven sites: Charleston, WV; Tulsa, OK; Boulder, CO; Boise, ID; Alaska Region Headquarters; Honolulu, HI; and the Hydrometeorological Prediction Center. There are three primary areas of focus for this non-operational evaluation of the IFPS software components at RPP sites:

- Making recommendations for software modifications to the model interpretation and grid-editing tools
- Locally prototyping modernized products
- Initiating the forecast process change that accompanies the use of IFPS.

NWS has installed PCs running Linux on the AWIPS LAN at RPP sites. Forecast staff is evaluating the first component of IFPS software, the GFESuite. The GFESuite provides gridded initialization routines and a graphical forecast editor. The GFESuite also provides tools for graphical product generation.

Next, RPP staff will evaluate model interpretation tools. These tools do not edit sensible weather directly, but rather interactively adjust threshold values used in the interpretation of model guidance into sensible weather forecasts. Model interpretation provides flexibility by tying threshold adjustments to model blends, model timing, terrain features, related forecast elements, and forecast model parameters. Forecasts produced by both of these IFPS software components can be used for the local prototyping of modernized products.

NWS has set up a list server and database for storage of the RPP software bug reports and modification requests. The list server will be used primarily to exchange information from the developers and comments and questions from the RPP staff. The database will be used to store software bugs and requests for software changes. The RPP Coordination team will prioritize software requests entered into this database. TDL and FSL staff will estimate level of effort needed for these software requests to prioritize them. Additional information on IFPS and RPP is available online.

Jamie Kousky, Meteorologist

SCIENCE AND TRAINING

Baseline Proficiency Standards Completed, Ready for Field Review

In December 1999, NWS completed the initial set of Baseline Proficiency Standards (BPS) for its field staff. Seven teams of NWS field representatives (with NWS Employee Organization representatives) drafted the BPS. The standards will now be reviewed at selected NWS forecast offices, River Forecast Centers and Center Weather Service Units (CWSUs). The BPS is intended to:

- Provide all NWS staff members with easily-accessible, clearly articulated information on the skills they are expected to possess in their position
- Offer a link to available training for each job or task
- Provide evaluation criteria against which managers can measure current job skills against the new baseline standards.

Once completed, OM and the NWS Employees Organization will assemble and summarize recommendations from the field test, including proposed objective evaluation criteria for assessing BPS completion, and post it on an NWSTC Web page. This review will determine future timelines to be published when available.

Mike Dion, BPS Program Leader

NWS to Finish Defining Training Requirements in FY 2000

NWS continues its efforts to develop training requirements for all field staff. Meetings were held during November 1999 at the NWSTC in Kansas City to define training needs for the NWS Cooperative Program and for CWSUs. The Regional Cooperative Program Managers who attended the meeting also agreed to generate training requirements for other functions handled by Hydrometeorological Technicians.

NWS held training requirements meetings in January 2000 for the areas of management, supervision and team dynamics, and marine forecasting. Meetings will also be held to determine training needs for climate, fire weather forecasting and administrative support. NWS management plans to have training requirements fully define by the thrid quarter of FY 2000. When completed, they will be posted on an NWSTC Web page.

Eli Jacks, Training Program Manager

COMET Adds Four New Case Studies

The Cooperative Program for Operational Meteorology., Education and Training (COMET) has posted four new events to its Case Study Library at **www.comet.ucar.edu/resources/cases/**. These cases cover a variety of meteorological events and bring the library total to 22 cases.

- **Case 19:** May 3, 1999, severe convective event affected much of northern and central Oklahoma and south-central Kansas and spawned an F5 tornado. Tornadoes in Oklahoma and Kansas resulted in 48 deaths and several hundred injuries.

- **Case 20:** September 13-17, contains data for Hurricane Floyd, which brought heavy rain and flooding to the eastern coast of the United States and was responsible for 68 deaths and $2.5 billion in damages.

- **Case 21:** October 30-November 1, heavy rains that resulted in 11 inches of rainfall in south-central Kansas and caused in record flooding in four rivers. There were numerous incidents of flash flooding that closed roads and resulted in one automobile-related fatality.

- **Case 22:** June 2-3, 1998, severe weather from Buffalo, NY, to Sterling, VA. This case is temporally connected to COMET Case 18 as it follows the derecho event that moved from Minnesota to New York.

COMET's next case will be on the November 9-11, 1998, Winter Severe Weather, which resulted in blizzard conditions in the Upper Midwest and severe thunderstorms through the Mississippi Valley.

To stay informed on the latest developments in the COMET case study project, subscribe to our mailing list at **http://www.joss.ucar.edu/cometCases/mailList.html**.

Elizabeth Page, OM Case Study Meteorologist

IST PDS Program Releases Two Web Modules

Two new modules are now available through the the Integrated Sensor Training (IST) Professional Development Series (PDS) program:

- *Three Classes of Storm Top Signatures in Infrared Satellite Data*. This module is a companion to the IST PDS/VISIT teletraining session on the Enhanced-V: A Satellite Severe Storm Signature at **www.cira.colostate.edu/ramm/visit/ev.html**. The IST PDS program welcomes your comments and feedback. If you have not taken part in the Enh-V teletraining session, the latest schedule is available at **www.cira.colostate.edu/visit**.

- *Polar Satellite Products for the Operational Forecaster Module 3: Case Studies*. This module provides two case studies that incorporate POES derived product imagery with data from other remote observing systems. The first case is a snow event in the Pacific Northwest. The event highlights the use of AMSU derived moisture products to supplement GOES imagery, numerical prediction model, and other in situ data to predict onset and duration of snowfall over Eastern Washington State on February 2, 1999.

The second case example involves predicting rainfall associated with Hurricane Georges. This example uses the SSM/I rainfall rate product to demonstrate the ability of POES microwave data to assess rainfall potential for tropical cyclones. A technique used to produce the Tropical Rainfall Potential product is applied to Hurricane Georges (September 1998) and compared with both numerical model quantitative precipitation forecasts (QPF) and hourly (gauge and NEXRAD) estimates.

These comparisons highlight the important role POES microwave data play in assisting with short-term QPF and the flash flooding potential of tropical storms. The module includes a survey to be e:mailed back to COMET.

You can find both classes online at **meted.ucar.edu/ist**.

Tony Mostek, Satellite Training Program Manager

COMET Publishes Two New NWP Segments

COMET has published two segments of the Numerical Weather Predication (NWP) PDS training:

- Understanding NWP Models and Their Processes
- Understanding Current Characteristics of Operational NWP Models.

These segments are available from the meted page **www.meted.ucar.edu/nwp/index.htm**. Click on pcu1 and pcu2 to access the training modules.

Both segments can also be accessed directly from the NWP matrix at **www.meted.ucar.edu/nwp/pcu2/index.htm**.

The far left column of the matrix contains background information on the fundamentals of NWP models and covers topics on model type, vertical coordinates, horizontal and vertical resolution, and model domain issues. The remaining columns address information on these topics with respect to specific operational models. Included so far are the Eta and AVN/MRF models.

The matrix will be updated continuously and will provide access to characteristics of the operational model suite. Topics will continue to be added over the next year. COMET expects to publish the next installment on model cloud and precipitation processes in late winter 2000. For more information, contact Rich Cianflone at **richc@comet.ucar.edu**.

Rich Cianflone, University Corporation for Atmospheric Research/COMET, Boulder, CO

NOAA WEATHER RADIO

New Voice Technology to Show Its Ability in Late March

Voice Improvement: The first demonstration of a different voice technology using recorded human voice (concatenation) will take place the last week in March 2000. The demonstration will take place at the Console Replacement System (CRS) contractor's site in Camarillo, CA. This capability is initially designed to handle all NWS watches, warnings and advisories. If the demonstration is successful, the software will be installed and tested at two NWS sites: Glasgow, MT, and Fort Worth, TX. The testing is expected to begin this summer. The national implementation of the concatenation technology must be handled via the complete procurement process, necessitating a national scope and issuance of a Request for Proposal.

Spanish Voice To Get User Review

Before launching the national implementation, NWS Headquarters will ask a third-party to assess the effectiveness of the Spanish synthesized voice within a non-bilingual Spanish-speaking population. Assessment results will be used to adjust the implementation plan for the voice and may result in a delay until NWS can concatenate the Spanish predefined translations.

Joanne Swanson, CRS Program Leader

NWR Gains New Corporate Sponsor, Office Depot

Office Depot is becoming a major promoter of NWR. In recent meetings, Office Depot management has said they want to become a major player in the NWR market. In addition to selling the radios, they are committed to promoting NWR on their Web site and in weekly sales flyers. They will also promote NWR to their corporate partners and reproduce the tri-logo pamphlets in large quantities. NWS is working with Office Depot to gain their support of NWS hazardous weather awareness campaigns.

John Ogren, WCM Program Manager

New Temperature Outlook Products for Heat to be Available June 1

In July 1995, a heat wave struck Chicago, killing 522 people. In the aftermath, research from the U.S. Centers for Disease Control and Prevention (CDC) revealed the extent of the deadly nature of heat waves. According to the CDC, an average of 384 people were killed by excessive heat each year from 1979-1992. The highest annual number of heat-related deaths, 1,700, occurred in 1980.

One positive outcome from the July 1995 heat wave studies was acknowledging that our definition of excessive heat needed major changes. No longer could excessive heat be defined with respect to a single maximum apparent temperature, i.e., 105°F. A number of additional factors beyond other meteorological elements (such as wind and cloud cover) were identified as necessary to the equation:

- Nighttime apparent temperature (because lower nighttime minimum temperatures can provide relief)
- How long people were going to be subjected to the heat (day in a sequence of hot days)
- Time of season (early in the season has more impact on the number of heat-related deaths than later in the season)
- Fact that some regions of the country are statistically more prone to heat-related deaths while others appear to be more resistant (because of a combination of climatological, physiological and sociological factors).

In August 1999, Commerce Secretary Daley announced ". . .we have put on a fast track research that will allow us to forecast the probability of heat waves 2 weeks in advance. This valuable information will be available to communities by next summer."

As promised, on June 1, the Climate Prediction Center (CPC) will start providing Apparent Temperature Probability Outlooks. These Outlooks were designed to provide as broad a range of information for the major factors linked to heat-related deaths without being unduly complicated.

The Outlooks will emphasize daily mean apparent temperature rather than maximum apparent temperature, although CPC also will provide the expected value of the maximum. Because health risks vary enormously from area to area, CPC will issue forecast probabilities for temperatures exceeding three different thresholds. These will be overlaid on isolines of the climatological normal probabilities. CPC chose the threshold temperature values based on when cumulative exposure would cause significant health risks for a number of the most vulnerable cities. In addition, because vulnerability increases with duration of the heat wave, risks for exceeding the lower threshold are for durations longer than one day.

These new products will consist of maps of probabilities of daily mean apparent temperature for thresholds equal to or greater than 85°F, 90°F, and 95°F for periods ranging from 3-7, 6-10, and 8-14 days. The probabilities will be for different minimum numbers of days, namely 3, 2 and 1 days, respectively, when the thresholds are equaled or exceeded.

More specifically, for the 3-7, 6-10 and 8-14 days forecast period, the new products will cover percent chance of:

- Daily average apparent temperature equal to or greater than 85°F occurring for three or more days
- Daily average apparent temperature equal to or greater than 90°F occurring for two or more days
- Daily average apparent temperature equal to or greater than 95°F occurring for one or more days

Prof. Laurence S. Kalkstein, Center for Climatic Research, University of Delaware, has developed information about a number of municipalities' vulnerability. Much of this work has been conducted in consultation with NWS researchers.

Warning systems based on Kalkstein's work have been successfully used in Philadelphia and Washington, D.C. A key to this success has been partnerships between Kalkstein, public health officials, and the local NWS offices. Plans are underway to extend this work to several municipalities in Ohio and in Phoenix, AZ. There will also be a Web site summarizing insight about factors affecting regional variability in vulnerability to heat waves.

Judy Koepsell, Meteorologist, Climate Services Division

National Center Issues

Hurricane Track Book Updated

The NOAA hurricane track book entitled "Tropical Cyclones of the North Atlantic Ocean, 1871-1999" has recently been updated. This book is available through the National Climatic Data Center and can be ordered by mail:

National Climatic Data Center
151 Patton Avenue, Rm. 120
Asheville, NC 28801-5001
phone: (828) 271-4800
fax: (828) 271-4876
TDD: (828) 271-4010
e-mail: **orders@ncdc.noaa.gov**
Internet: **http://www.ncdc.noaa.gov**

Stacy Stewart, WCM, TPC/NHC

Hurricane Preparedness CD Reaches 1,000 Emergency Managers

The NWS/FEMA/COMET Community Hurricane Preparedness CD has been available since June 1999 as a Distance Learning Course through FEMA. In addition to being distributed to local NWS offices, approximately 1,000 emergency managers and other local officials have enrolled in the course.

Stacy Stewart, WCM, TPC/NHC

Hurricane Aware Tours Scheduled

Caribbean and Gulf of Mexico Hurricane Awareness Tours (HAT) are scheduled for March 13-18 and May 1-5, respectively. We will be conducting the HATs along with John Pavone, Chief, Hurricane CARCAH, Hurricane Reconnaissance Unit.

Stacy Stewart, WCM, TPC/NHC

Three Hurricane Preparedness Courses Draw Large Audiences

In January and February 2000, 80 attendees completed three 1-week FEMA's "Introduction to Hurricane Preparedness" courses. The attendees included 78 local emergency managers from the Gulf Coast, Southeast and Northeast regions of the United States, and two Air Force officers from the U.S. Southern Command, Miami, FL.

The TPC/NHC provided several instructors to conduct and teach the meteorology sessions. The instructors also interacted with the attendees and answered questions during the course. This remains one of the most popular courses FEMA sponsors. It will be revised and updated later this year.

Stacy Stewart, WCM, TPC/NHC

Community Outreach Activities

Freezing Fog Advisories Help Reduce Ice Accidents

Last winter and again this winter, NWSFO Little Rock has been conducting an experiment involving "Freezing Fog Advisories." The aviation term "Freezing Fog" was adopted as a means of alerting the general public about the hazard caused by fog when temperatures are below freezing. Often, this situation causes a thin layer of ice to develop on bridges, overpasses, and other elevated roadways, resulting in numerous traffic accidents during morning rush hour.

The idea for issuing Freezing Fog Advisories came from news media coverage of icy-bridge accidents during the winters of 1996-97 and 1997-98. In many cases, forecasters at Little Rock had issued Special Weather Statements about the icy bridges during these winters and had shown skill at recognizing the occasions when the slippery conditions would occur. The point of issuing advisories was to increase public notice of the problem. The formal advisories, and the inclusion of a headline in the Zone Forecasts, bring much more news media attention to the problem.

The news media picked up on the new terminology very quickly and featured the advisories during news shows and weathercasts. Forecasters have shown considerable skill at issuing the advisories for the appropriate times. The experiment was approved in advance by regional and national headquarters. Forecasters were not confined to the strict aviation definition of freezing fog, i.e., visibilities less than 5/8 statute mile because icy conditions have developed, at times, when visibilities were in 2-3 mile range. Although similar situations are called "black ice" in other parts of the country, this term was not used since it is not a common term in Arkansas.

John Robinson, WCM, NWSFO Little Rock, AR

Datastreme Taps NWS as Web Source

NWSFO Little Rock, AR, Senior Forecaster John Lewis has received acclaim for the office's Web site from inside Arkansas and across the country. Most recently, graphics from our site were used in a fall AMS Datastreme lesson. (Datastreme is a program that helps teachers keep up-to-date.)

Little Rock Web materials were used to illustrate the January 21, 1999, tornadoes in Arkansas. The office has been working with Datastreme for more than two years. Several members of the Little Rock staff serve as mentors for the teachers involved in the program.

Datastreme used our Web site information for the March 1, 1997, outbreak as well. In addition to providing Web resources, we also hold Datastreme meetings at our office. Datastreme is an excellent form of outreach and provides a logical extension of that program for both the office and for the Arkansas Chapter of the AMS/NWS. Our office recommends the program to those not already involved in it. To see what has been used, You can view the AMS Datastreme Web page under Activity 7B.

George R. Wilkin, SOO, NWSFO Little Rock, AR

Ideas for an Office Open House

Nearly 850 people attended the open house held by the NWSFO St. Louis staff on October 16. Guests asked questions of staffers and watched frequent balloon launches while waiting in line for the tour. Once inside the building, attendees were given a presentation on the mission and operations of the NWS. The tour then wound through the operations area, observing demonstrations of AWIPS, CRS, and the WSR-88D.

The staff created and displayed informational posters on Doppler radar interpretation, the office COMET Cooperative with St. Louis University, storm damage surveys, the office Internet home page, and winter precipitation type. The HMT staff also had cooperative observer equipment on display. Attendees also could ask questions of the ET staff and look inside the RDA shelter. The American Red Cross and St. Louis County Emergency Management officials set up booths outside the office. While over 90 percent of the attendees were from the St. Louis metro area, guests came from the farthest counties in the CWA, Kansas, Mississippi, and Georgia.

Steven Thomas, MIC, NWSFO St. Louis, MO

Disaster Preparedness and Winter Weather Awareness EXPO

On October 30, NWSO Billings, MT, took part in a Disaster Preparedness and Winter Weather Awareness EXPO. This EXPO concluded the activities of Disaster Preparedness month and Winter Weather Awareness Week across Montana. WCM Steve Kuhl, Senior Forecasters Chuck Bikle and Mark Strobin, General Forecaster Rick Canepa, and Meteorological Technician Carolyn Gurney staffed a NWS public outreach booth.

The EXPO was organized by the NWS Billings, MT, Outreach Committee. Agencies staffing booths at the EXPO included: American Red Cross; Yellowstone County Department of Emergency Services; State of Montana Department of Emergency Services; Yellowstone County Amateur Radio Club; Northern Ag Network; Smith's Foods; Sears Department Stores; Billings Fire Department, Montana State Highway Patrol; American Medical Response; and the Montana Department of Transportation.

The advertisement at left reflects a strong public/private partnership working to keep people safe and to promote weather safety and disaster preparedness.

Steve Kuhl, WCM, NWSO Billings, MT

Low Level Wind Shear Program Now Online

Two slide shows on Low-Level Windshear are available on line from CWSU Seattle in PowerPoint/Corel Presentations formats.

Pilot's knowledge of LLWS: This presentation is based on a series of surveys taken in the late 80s and early 90s. The idea was to prove that pilots don't understand LLWS terminology. These were published and presented at several AMS Aviation conferences as the work progressed. The same survey was given to the participants at an Aviation conference in Kansas City, and shows that many forecasters do not understand LLWS terminology either.

Proper use of LLWS in the TAF: This second part was made in hopes of refreshing forecaster's knowledge about LLWS, its definition, the difference between LLWS and low level turbulence, and the use of LLWS in the TAF. A shortened version was shown at the WRH MIC conference in the spring of 1999 and the downloads are the result of an action item from the conference.

Bob Jackson, CWSU Seattle, WA

Creating A Spanish Language Web Page

Need a way to convert material into Spanish? Check out this Western Region site for help. The Spanish language Web Page is an excellent idea for reaching large Hispanic populations NWS was unable to reach before. The Spanish Web Page focal point, Miguel Miller, is constantly modifying the software and making significant improvements. Therefore, the Web page is a living document that improves almost daily. For the very latest updates, please contact Miguel at the San Diego NWSO.

Armando Garza, Miguel Miller, Brandt Maxwell, NWSO San Diego, CA

"Twins" Stars Promote Weather Safety

Minnesota Twins Manager Tom Kelly and players Terry Steinbach and Todd Walker have recorded safety messages dealing with adverse weather and NWR. The Public Service Announcements (PSAs) are 30 and 60 seconds long and are put to music. They are available on our home page in a variety of formats. Please let the media in your area know of their availability. If you need a CD version, I can easily create one. If you have any questions concerning the PSAs, feel free to drop me a note at **Todd.Heitkamp@noaa.gov** or give me a call at 605-330-4247.

Todd Heitkamp, WCM, NWSFO Sioux Falls, SD

Drawn to Safety by Magnets

As part of the South Dakota Winter Weather Preparedness Week, Lead Forecaster and Project Impact Education Committee Chairman Stan Keefe worked with two local supermarkets to produce 6,000 refrigerator magnets with Winter Weather Safety Tips. Aberdeen WFO meteorologists handed out many of the magnets, along with other Winter Weather Safety information, at the supermarkets during the weekends bordering Winter Weather Preparedness Week. Graphics and details for this project can be obtained by contacting Stan at WFO Aberdeen. Information on other Aberdeen Project Impact Education efforts will be made available by FEMA on a CD highlighting Project Impact initiatives from across the country.

George Marshall, WCM, NWSO Aberdeen, SD

Chemical Emergency Option Draws NWR Grant

Jerry Orchanian, WCM, NWSFO Nashville, TN, is helping expand NWR coverage by working with his local Emergency Management Administration (EMA) director and representatives from Du Pont Chemical Co. Orchanian explained to the Du Pont reps how NWS can alert the community of chemical leaks via NWR. He showed them several ways NWS can state the nature of the chemical emergency: alerting for a shelter-in-place situation vs. an evacuation. Based on these discussions, the county EMA will sell Radio Shack brand NWRs with a tone-alert feature for $15. The county obtained a grant of $15,000 to subsidize this program.

To further spur interest in NWR, the NWS and county officials planned a surprise mock chemical leak from a tanker truck near Waverly, TN. The drill was held November 1. The Civil Emergency Messages were drafted up in X-NOW in AWIPS. The first Chemical Emergency Message initiated the drill around 9 a.m. The second Chemical Emergency Message gave the "all clear" at 11:04 a.m. These messages were received and sent out as a tone-alert over the McEwen NWR transmitter. The drill went smoothly according to the county EMA Director.

Jerry Orchanian, WCM, NWSFO Nashville, TN

TV Meteorologists Attend NWS Radar School

In November, NWSFO Dallas, TX, staff offered the last of five workshops for Dallas/Fort Worth area weathercasters. SOO Mike Foster and WCM Jim Stefkovich provided these workshops for five major TV stations, each sending multiple on-air personalities. The seminars focused on optimum use of WSR-88D products and Build 10 algorithm output as well as the integrated warning system. We also included an office tour and demonstration of the warning process using AWIPS, and discussions on continuing the strong partnership between the NWS and television media. We received written and verbal kudos for the series and plan to extend it to Waco/Killeen in December and Sherman/Denison areas by early 2000.

Jim Stefkovich, WCM, NWSFO Dallas/Fort Worth, TX

New Study to Focus on Supercell Thunderstorms

To research the interactions of meteorological elements during severe weather, scientists have planned a field project in parts of western Kansas and eastern Colorado during the severe weather season. The research, to be conducted late spring and summer, will help scientists better understand supercell thunderstorms.

The project, called STEPS, for Severe Thunderstorm Electrification and Precipitation Study, aims to better understand the interactions between the air flow, precipitation production, and electrification in severe thunderstorms on the High Plains. The goal is to improve the accuracy and reliability of weather warnings and forecasts for these disruptive storms. The area chosen is well known for producing severe hailstorms and storms with frequent positive cloud-to-ground lightning.

Installation of two research radars and a lightning mapping system will be complete by the end of April. Crews for several STEPS facilities, including the lightning mapping system, ballooning team and sounding units, will be based near Goodland, KS. A T-28 and Citation aircraft, along with a ballooning crew and mobile weather sensor network crew, should arrive at Goodland in May. The Operations Center for the project and research radars will also be activated in May. The field phase of the program will be based along the Colorado-Kansas border near the position of the seasonal dry line. The study is planned for an 8-week period from May to July 2000.

The STEPS team will look for a correlation between severe storms producing large hail and possible tornadoes with the occurrence of positive cloud-to-ground strikes. In addition, the study is expected to offer insight into Quantitative Precipitation Forecasting efforts on the High Plains. This project also will give some Emergency Managers and NWS SKYWARN Spotters the chance to work with project leaders and the Goodland NWS office. Trained spotters along the Colorado-Kansas border will be a key source for severe weather information and verification, and will be tremendous contributors to STEPS in the upcoming study.

Kevin Lynott, WCM, NWSO Goodland, KS

Grand Rapids Tests New Mesonet

Data from the initial sites in the Grand Rapids, MI, Mesonet are flowing over the airwaves of the Amateur Packet Radio System. The system runs through a computer with a Linux operating system and LDAD into AWIPS; it is plotted in D2D. This Initial Operating Capability of six stations has been online since early January 2000. The system will expand to more than 23 sites in 23 counties by fall 2000.

Volunteer Emergency Services and Support Agency (VESSA) completed final plans for the equipment and site configuration and presented them to Steelcase Inc. in December 1999. VESSA is a non-profit organization, which means that funds granted to it are tax deductible.

The program is funded by Steelcase Inc. and FEMA, which provided $10,000 and $30,000 respectively in grant money to VESSA in response to proposals written by Phillip Carino in 1998. Carino was then serving as the SKYWARN Team Leader for NWSO Grand Rapids.

Sparta, MI, test site staff will run a 2-week test of each new set of observing equipment for accuracy before the sensors are installed at airports across the 23 counties in the warning area. Initial equipment was installed at Sparta in January 2000.

Mike Heathfield, WCM, NWSO Grand Rapids, MI

Jackson, KY, Tests New Research and Education Programs

NWSO Jackson, KY, has been actively involved in programs to serve the educational community throughout the region. In additional to providing tours to thousands of school age students and attending numerous festivals, careers fairs and other community events, Jackson staff are involved in three new educational programs.

Global Learning and Observations to Benefit the Environment (GLOBE) is a worldwide network of students, teachers and scientists working together to study and understand the global environment. Students and teachers from over 7,000 schools in more than 80 countries are working with research scientists to learn more about our planet. During the past year, Michael Lewis, SOO, NWSO Jackson, KY, has been involved in training workshops for GLOBE.

These workshops have been conducted in Moscow, ID, and at the Fermi-Lab in Illinois. GLOBE trained and certified teachers take the program to the schools. Once trained, students measure, monitor and report environmental data to the world. This approach to applied science provides a useful tool to bring the world into the classroom. To get the latest on GLOBE, visit the GLOBE Web site at **http://www.globe.gov**.

INSITE Weather Stations: In August 1998, a Pioneer Grant was awarded to purchase and install a network of automated weather stations. These stations have been placed in schools throughout the area to provide a learning tool for the teachers, and to provide near real-time data for the hydrometeorologists.

Out of this grant, the Information Network for Science, Ideas, Technology and Education (INSITE) project was born. This collaborative project between the University of Kentucky Agricultural Weather Center, the Kentucky Department of Education and NWS uses available technology to send data via the internet to a server at the University of Kentucky. This data is then posted for use by anybody with Internet access. To view the latest information, visit INSITE at **http://www.crh.noaa.gov/jkl/stw**.

Summer Weather Education-Atmosphere Training (SWEAT) Workshop: The direct result of INSITE and GLOBE has been a request by the educational community of Eastern Kentucky to learn more about meteorology. NWSO Jackson, KY, will conduct the first annual SWEAT workshop. The SWEAT-shop is being developed locally as a collaborative effort between the Kentucky Department of Educatin and NWS. As of this writing, the instructors will be Dave Stamper, DAPM; Mike McLane, Service Hydrologist; Jim Keeney, WCM; Michael Lewis, SOO; and Shawn Harley, MIC. The teaching methods will be reviewed and developed with assistance from Eric Thomas, Science Consultant, Kentucky Department of Education Region Service Center 7.

Funding has been obtained to buy students textbooks and equipment. Teachers attending the week-long program will learn about the weather, climate and technology. By the end of the week, participants are being asked to identify a science/research project to bring to the classroom. After leaving the session, the equipment they receive can be used to gather data for research and to later use by future GLOBE participants.

Michael Lewis, SOO, NWSO Jackson, KY

Teachers Gain Math and Science Expertise From PCS Program

NWSO Wilmington, OH, took part in a National Teacher Training Institute for Math, Science, and Technology (NTTI) on Saturday, February 5. The institute was held at Wright State University near Dayton, OH. NTTI is a one-day conference and lesson development workshop. The program is designed to help teachers of Grades 3-8 improve math and science instruction by integrating video and other technologies into their classroom. This is a national program developed by WNET 13, New York, sponsored by the Corporation for Public Broadcasting. Think TV Network (Greater Dayton Public Television) is one of only two dozen national sites for the NTTI.

I took part in the NTTI through a display in the resource room. NWSO staff made a large NWS display and an NWR display where pamphlets were passed out. Around 120 teachers were registered for the training institute. The teachers who came by the display taught grades ranging from 2nd-9th. They had many questions about what meteorological resources are available for teachers. Many of the teachers were excited about teaching weather. This provided a great opportunity for them to talk with someone in the field of meteorology.

Mary Jo Parker, WCM, NWSO Wilmington, OH

Using Highway Overpasses as Storm Shelters: Slide Show

Need a dynamic slide presentation on using overpasses as storm shelters? Dan Miller, National Severe Storm Laboratory (NSSL), and others from NSSL, have put a presentation on the Web. This 25 slide production features lots of graphics on the topic of overpasses as shelters. Find it at **www.srh.noaa.gov/oun/papers/overpass. html**.

Jim Purpura, WCM, NWSFO Oklahoma City, OK

Survey, Severe Weather Week, NWR Keep NWS Office in News

Tennessee WCM Jerry Orchanian has had a busy couple of months extending outreach activities. Projects have included:

- TV and radio interviews on a tornado storm survey, Severe Weather Awareness Week, NWR and CRS
- Numerous public tours
- SKYWARN Spotter Classes held on the road in smaller towns and at the UAW Hall for the General Motor Saturn plant
- Film project for NOAA in Clarksville, TN.

Jerry Orchanian, WCM, NWSO Nashville, TN

Grocery Bags Clarify Tornado Safety Rules

WCM Jim Stefkovish, NWSFO Dallas, TX, has just completed a review of Tornado, Flash Flood and Lightning safety rules with Willamette Industries in Dallas. Willamette produces paper bags for almost every grocery store in Texas, Oklahoma and parts of New Mexico, Arkansas, and Lousianna. Willamette intends to print these safety rules on all bags throughout the spring. One of the major changes made was correcting the perception that bridges are safe places from strong winds. Willamette has said it would print with the following warnings, "DO NOT seek protection under bridges."

Jim Stefkovich, WCM, NWSFO Fort Worth, TX

NWS Gets Kudos From Texas Media

On March 7, WCM Jim Stefkovich, NWSFO Dallas/ Forth Worth, represented NWS at the WFAA-TV (ABC) “Family First” meeting at a local High School. This was a one hour live show broadcast on WFAA’s sister station,

Texas Cable News Network (TXCN), which reaches 600,000 homes in the Dallas/Fort Worth Area. Almost 800 people were in the audience.

All three weathercasters from the station were on hand, as well as representatives from FEMA (Project Impact), Texas Tech University, severe weather "Safe Room" builders, Amateur Radio Operators, Storm Chaser organizations (including Tim Marshall), and local emergency management.

Stefkovich answered about 80 percent of all questions put to the panel. Of special importance was the weathercasters publicly acknowledging the fact that the NWS, including the Fort Worth Office, "are the experts when it comes to severe weather warnings and forecasts."

Jim Stefkovich, WCM, NWSFO Fort Worth, TX

Weather Safety PSAs Hit Western Air Waves

NWSO Billings WCM Steve Kuhl recently recorded six PSAs on Severe Weather Safety and NOAA Weather Radio. The PSAs were professionally recorded in partnership with Northern Broadcasting System, Northern Ag Network. The Northern Broadcasting System has 65 radio station affiliates in five states: Montana, Wyoming, Idaho, North Dakota and South Dakota. These stations had access to the PSAs via satellite on March 1. The subjects of the PSAs are:

- Severe Thunderstorms
- Flash Floods
- NOAA Weather Radio
- Tornadoes
- Blizzard and Wind Chill
- Watch and Warning

The PSAs are also on the NWSO Billings Home Page as wave files that can be downloaded by the general public or linked to by other NWS offices in the five states if they wish. The caption on our PSA page says "Public Service Announcements on Weather Safety. Forming public/private partnerships to better educate the citizens of Montana and Wyoming on Severe Weather Safety and NOAA Weather Radio."

To view and hear the PSAs, go to **www.wrh.noaa.gov/billings**. Click on "Listen to our new PSAs," then download the files.

Steve Kuhl, WCM, NWSO Billings, MT

NWS Key West Takes Part in "Live From The Storm" Program On PBS

Meteorologist In Charge Bobby McDaniel, NWSO Key West, FL, and WCM Wayne Presnell took part in a question and answer portion of the PBS program "Live From the Storm, The Who, What, Where, When and Why of Weather." The program, which focused on hurricanes and winter weather, aired on March 7 from 1:00-2:00 p.m.

Students from across the country submitted questions in real-time to weather researchers and received individual answers back via electronic mail. The grade level of the students ranged from early middle school to early high school. The students were allowed to submit questions until 3 p.m. Bobby and Wayne received questions concerning hurricanes and thoroughly enjoyed answering them.

The program was to be shown on approximately 90 PBS stations across the country either live or on tape delay. Many educational networks broadcast the show via satellite. It is estimated that the PBS stations showing the program have the potential to reach more than 7 million students.

The following, passed on by online moderator, Eileen Bendixson, is from a teacher who viewed the program.

"Already read, printed, and prepared to share multiple copies with the kids. They're really excited about reading their answers—and from what I read, the answers were GREAT . . . and some very long. Really appreciate the time the experts took. Between the broadcast video and the answers alone, I have enough material for several days of class."

It appears the interactive program was a success. PBS will air another weather-related program on April 11. Bobby and Wayne may take part in that program as well.

Wayne Presnell, WCM, NWSO Key West, FL

Preparedness Month Features NWS

Washington State Governor Gary Locke has again proclaimed April as Disaster Preparedness Month. This campaign involves an "all-hazards" approach. Campaign highlights that involve NWS include videos and PSAs as well as using the following NWS publications:

- Moving Water: Adventure or Danger?
- Low Water Crossings - another OH video production
- Tsunami Warning and Evacuation.

Ted Buehner, WCM, NWSFO Seattle, WA

Publications and Audiovisuals

OM Releases Thunderstorms, Tornadoes, Lightning Brochure

A new 16-page tri-logoed brochure entitled, "Thunderstorms, Tornadoes, Lightning" (NOAA PA 99050) has been completed and is being printed. This publication combines two 12-page brochures: "Thunderstorms and Lightning" and "Tornadoes." These two 12-page brochures will not be reprinted but will be available on the Internet at **www.nws.noaa.gov/nwspub.html**. While the safety messages remain consistent, the brochure has a new look with some additional photos and facts. The initial printing will be 150,000 copies. Delivery date to the National Logistics Supply Center (NLDC) in Kansas City, MO, is scheduled for April 17, 2000. The maximum number you can order is 300 copies. Our thanks go to Jim Meyer, WCM, Quad Cities, who spent one week at NWS Headquarters getting this brochure off the ground.

Scott Kiser, Constituent Affairs Program Leader

New Hurricane Flooding Brochure

In the last 30 years, inland flooding has been responsible for more than half the deaths associated with tropical cyclones in the United States. When it comes to hurricanes, winds speeds do not tell the whole story. Hurricanes produce storm surges, tornadoes, and often the most deadly of all—inland flooding.

Hurricane Flooding: A Deadly Inland Danger is expected to be in stock at the NLDC by late April 2000. For single copies, see address in the next article or e:mail **larry.wenzel @noaa.gov**.

Larry Wenzel, Hydrologic Technician, OH

New Video "Water Work: Careers in Hydrology"

The complex world of hydrology has just been made easier to understand. If you only had 15 minutes to educate and encourage a junior or senior high student to become a hydrologist, this would be the video to use. Just as water gives life, it can be taken away by floods and droughts.

We need to understand how water works and how it will affect us. The video introduces the viewer to the hydrology discipline and what hydrologists do.

VHS copies of this video can be obtained by sending a $3.50 check or money order (for duplication, postage, and handling) payable to NOAA/National Weather Service. Send your requests to:

Water Work
NWS, Office of Hydrology
SSMC 2, Room 8115
1325 East-West Highway
Silver Spring, MD 20910

Send your e:mail questions to **larry.wenzel@noaa.gov**.

Larry Wenzel, Hydrologic Technician, OH

New Brochure: Saving Lives With All-Hazard Warning Network

A new high-quality color booklet, *Saving Lives with All-Hazard Warning Network*, explains how NWR can save lives as America's all-hazards network. It offers maps, graphics and easy-to-read text explaining the advantages and availability of NWR.

The booklet also discusses other new technologies, such as cell phones, digital television and the Internet. The booklet was prepared by the Multi-Agency Working Group of Vice President Gore's National Partnership for Reinventing Government. It makes a number of recommendations to enhance and expand coverage and improve use of NWR and other warning technologies.

Single copies are available from Linda Kremkau at 301-713-0090 x118 or Ken Putkovich at 301-713-0026 x191. Additional copies are available from NLSC as publication NOAA/PA 20050.

Ken Putkovich, NWR National Program Manager

Children's Disaster Safety Program in Works for Schools

The American Red Cross (ARC) is developing a children's disaster safety curriculum entitled Masters of Disaster. With the help of representatives from NWS and other organizations, a team of teachers this summer wrote lesson plans and activities for the curriculum. These materials will help teachers achieve state teaching performance

requirements in math, science, language arts and social studies through curriculum covering the hazards of earthquakes, hurricanes, floods, tornadoes, lightning, and, in general, family preparedness.

The curriculum was pilot tested during the fall of 1999 in 40 locations including Guam, Puerto Rico and 23 states, in small, medium, and large school districts. More than 380 teachers from 90 schools taught lessons from the curriculum and returned more than 650 evaluation forms. A Red Cross professional development team reviewed the forms and incorporated suggested changes into lesson plans and activities. The pilot testing was very successful and many teachers expressed great enthusiasm for the materials.

As of February 2000, staff was making final changes to lessons and activities throughout the curriculum as well as in producing several different videos that will support explaining the science of natural hazards to children on their level. ARC plans to release the curriculum this summer. As more information becomes available, we will post it to our Web site at **www.redcross.org/disaster/masters**. If you have further questions, please e:mail: **curric@usa.redcross.org**.

Rocky Lopes, Community Disaster Education
American Red Cross

1998 Summary of U.S. Natural Hazard Statistics On-Line

The NWS Office of Meteorology has posted Natural Hazard Statistics for 1998. Here are some highlights.

- Weather and flood-related hazards in 1998 claimed 687 lives, injured 11,171 persons, and cost more than $16 billion in property and crop damages.
- Extreme heat ranked as the #1 weather-related killer with 173 fatalities, outranking floods.
- Floods resulted in 136 deaths, followed by tornadoes with 130.
- The 10-year (1989-1998) average number of weather-related fatalities is 567.
- Of the 11,171 injuries, floods caused an astounding 6,440 injuries.
- Topping the damage list were tropical storms and hurricanes with $4.1 billion, and drought with $2.2 billion.
- States suffering more than a billion dollars in property damage included Puerto Rico, Florida, Minnesota and Texas.
- Of the 687 people who died because of severe weather, 449 were male and 233 were female, nearly twice as many males as females.
- The 30- to 49-year-old age group accounted for the largest number of fatalities with 199.
- July was the deadliest weather month with 121 fatalities attributed to excessive heat and flash flooding. Texas recorded the highest number of deaths with 122 from excessive heat and floods.
- Texas also had the highest number of injuries with 6,442, mainly from floods.
- The 30-year (1969-1998) average fatality rate for floods rose slightly from 140 in 1997 to 143 in 1998; lightning is 79; tornadoes, 69; and hurricanes, 24.
- The 10-year average for cold related fatalities is 38; for heat related fatalities, 144.

The statistics are online at **www.nws.noaa.gov/om/hazstats.htm**.

Linda Kremkau, Managing Editor

National Hurricane Awareness Week

NWS and FEMA are working together to have President Clinton sign a proclamation of Hurricane Awareness Week May 12-20, 2000. The proclamation highlights the devastating effects of Hurricane Floyd, inland flooding, rapid population growth in hurricane prone areas, and the forecast for the 2000 season. The proclamation is currently at the White House awaiting signature.

John Ogren, WCM Program Manager

Hurricane Awareness Weeks Scheduled in 2000

State	Event	Date
Eastern Region		
North Carolina	Hurricane	May 28-June 3
South Carolina	Hurricane	May 28-June 3
Virginia	Hurricane	June 4-10
Southern Region		
Alabama	Hurricane	May 22-26
Florida	Hurricane	June

Severe Weather Awareness Weeks Scheduled in 2000

State	Event	Date
Eastern Region		
Maryland/DC	Severe Weather	Apr. 23-29
New York	Severe Weather	Mar. 19-25
North Carolina	Severe Weather	Feb. 21-25
Ohio	Severe Weather	Mar. 5-11
	Drill	Mar. 8
Pennsylvania	Severe Weather	Mar. 19-25
South Carolina	Severe Weather	Feb. 21-25
Vermont	Severe Weather	Mar. 19-25
Virginia	Tornado Prep. Day	Mar. 28
West Virginia	Severe Weather	Mar. 19-31
Southern Region		
Alabama	Severe Weather	Feb. 21-25
Arkansas	Severe Weather	Feb. 20-26
	Drill	Feb. 24
Florida	Severe Weather	Feb. 21-25
	Drill	Feb, 24
Georgia	Severe Weather	Feb. 21-25
Louisiana	Severe Weather	Feb. 21-25
Mississippi	Severe Weather	Feb. 21-25
New Mexico	Severe Weather	Apr. 3-7
New Mexico	Flash Flood, Lightning	June 5-9
Oklahoma	Severe Weather	Mar. 5-11
Tennessee	Severe Weather	Feb. 21-25
Texas	Severe Weather	Mar. 5-11
Central Region		
Colorado	Severe Weather, Wildfire	Apr. 9-1
Illinois	Severe Weather	Mar. 12-18
Indiana	Severe Weather	Mar. 12-18
Iowa	Severe Weather	Mar. 27-31
Kansas	Severe Weather	Mar. 13-17
Kentucky	Severe Weather	Mar. 1-31
	Drill	Mar. 7
Michigan	Severe Weather	Mar. 26-Apr. 1
Minnesota	Severe Weather	Apr. 10-14
Missouri	Severe Weather	Mar. 13-17
		Mar. 14
Nebraska	Severe Weather	Apr. 3-17
	Drill	Apr. 5
North Dakota	Severe Weather	Apr. 17-21
South Dakota	Severe Weather	Apr. 17-21
	Drill	Apr. 19
Wisconsin	Tornado, Severe Weather	Apr. 10-14
	Drill	Apr. 13
Wyoming	Severe Weather	Apr. 17-21
Western Region		
Idaho	Severe Weather	Apr. 10-14
Montana	Severe Weather	Apr. 3-7

For up to date information on Awareness weeks, check out **www.nws.noaa.gov/om**.

Linda Kremkau, Managing Editor

Hazardous Weather and Flood Resource Guide Now Online

FEMA has placed the Hazardous Weather and Flooding Preparedness Resource Guide, which supports it course of the same name, in the FEMA Library at **www.fema.gov/library/toc.doc**. The guide contains NWS hazardous weather facts sheets and other materials designed to improve coordination between emergency management and NWS.

The course promotes proactive responses to weather and flood hazards. The class was developed by the NWS and FEMA staff with input and assistance from many state and local emergency managers.

Sam Isenberger, Emergency Management Institute

Weather Channel "Classroom"

The Weather Channel airs a series of programs offering insights into how weather happens. These commercial-free shows are 8 minutes long; they air from 4 a.m. to 4:30 a.m. The shows offer breaks for classroom discussion. Show topics are listed below. For online weather education, see **www.weather.com/education**.

- March 27, 30: Climate: A World of Weather
- April 3, 6: Extremes in the Water Cycle
- April 10,13: Sun, Seasons & the Sky
- April 17, 20: Air in Motion
  April 24, 27: The Science of Indoor Weather
- May 1, 4: The Social Studies of Indoor Weather
- May 8, 11: Look Up! Sky Awareness
- May 15, 18: Thunderstorms: The Weather Machine
- May 22, 25: Tornadoes
- May 29: Water: Oceans to Air
- June 1: Water: Oceans to Air
- June 5, 8: Hurricanes
- June 12, 15: Snow, Ice, Wind & Cold
- June 19, 22: Forecasting The Weather
- June 26, 29: Climate: A World of Weather

Laura Buss, The Weather Channel

New and Improved NWR Materials

The following page is an updated NWS publications list. Note that the list now includes the new 16-page hazards awareness booklet (NOAA PA 99050). Also two MSC charts (10 and 15) have new NOAA PA numbers. Remember that most of the Red Cross publications are out of stock at NLSC in Kansas City, MO, but local Red Cross chapters have some copies available for a small fee.

The following three publications have been reprinted and are available at NLSC.

- NOAA Weather Radio — NOAA PA 96070
- NOAA Weather Radio Frequency Pamphlet — NOAA PA 94061
- Saving Lives All Hazards Warning Network — NOAA PA 20050

Also, NWR decals in three sizes are available at NLSC. They are:

- NWR Decal (3" x 3") — NOAA PA 20051a
- NWR Decal (5" x 5") — NOAA PA 20051b
- NWR Decal (7" x 7") — NOAA PA 20051c

For information on the NWR publications and decals, please contact Stan Johnson at 301-713-1736x190. For information on other NWS publications, contact **linda.kremkau@noaa.gov** or call 301-713-0090x118.

Linda Kremkau, Managing Editor

Chapter Updates, Roster Now Online

Attachment A is the WSOM chapter updates. The WSOM chapters are now available to all NWS employees at **tgsv6.nws.noaa.gov/wsom/**. This site is meant for NWS employees. Please do **NOT** link this site from other Web sites.

Attachment B is the *Aware* Roster: a list of WCMs and SOOs in each NWS Region. Telephone numbers are *listed* numbers for an office, *NOT* the direct number. If you know of a name or telephone number change, please notify me at **melody.magnus@noaa.gov**. If you know someone who would like to receive the *Aware*, please have him or her contact Linda Kremkau at **linda.kremkau@noaa.gov**.

You can find the most up-to-date version of the WCM/SOO roster at **www.nws.noaa.gov/om/nwspub.htm**.

Melody Magnus, Editor

NWS Publications

NOAA PA	NAME
70027	Survival in a Hurricane (Wallet Card)
77014	Flash Flood (Wallet Card)
82002	Dust Storm Driving Safety (Wallet Card)
82004	Watch Out Storms Ahead
85001	Heat Wave (Out of print)
85002	Hawaiian Hurricane Safety Measures with Central Pacific Tracking Chart
85005	Tornado Safety Tips (Como Protegerse En Caso De Tornado) (WC)
85006	Survival in a Hurricane (Como Sobrevivir En Un Huracan) (Spanish 70027) (WC)
86001	Natural Hazard Watch & Warning Poster (English/Spanish)
91002	Winter Storms…The Deceptive Killers
91003*	Red Cross - Are You Ready for a Winter Storm? (Out of print)
91004	Red Cross - Are You Ready for a Winter Storm? (Spanish Version)
91005*	Red Cross Poster - Are You Ready for a Winter Storm? (English/Spanish)
92050	Flash Floods and Floods…The Awesome Power!
92051	SKYWARN Decal
92052 +	Tornadoes…Nature's Most Violent Storms
92053 +	Thunderstorms and Lightning…The Underrated Killers!
92054	FEMA's Emergency Preparedness Materials Catalog
92055	Advanced Spotter's Field Guide
92057*	Red Cross - Are You Ready for a Tornado? (Out of print)
92058	Red Cross - Are You Ready for a Tornado? (Spanish)
92059*	Red Cross - Are You Ready for a Flood or Flash Flood? (Out of print)
92060	Red Cross—Are You Ready for a Flood or a Flash Flood? (Spanish)
92061*	Red Cross Poster—Are You Ready for a Tornado? (English/Spanish)
93051*	Red Cross Poster—Are You Ready for a Thunderstorm? (Out of print)
93052	Red Cross—Are You Ready for a Thunderstorm? (Spanish)
93053*	Red Cross Poster—Are You Ready for a Thunderstorm? (English/Spanish)
93056	A Pilot's Guide to Aviation Weather Services (replaces PA 71005) (Booklet)
93059	A Change in the National Weather Service
93060	Spotter ID Card (Replaces 84001) (Out of print)
94050	Hurricanes . . . Unleashing Nature's Fury (Revised 3/96)
94052*	Red Cross—Are You Ready for a Heat Wave?
94053*	Red Cross—Are You Ready for a Hurricane?
94054	Red Cross—Are You Ready for a Hurricane? (Spanish)
94055*	Red Cross Poster—Are You Ready for a Hurricane? (English/Spanish)
94056	Red Cross—Are You Ready for a Heat Wave? (Spanish)
94057*	Red Cross Poster—Are You Ready for a Heat Wave? (English/Spanish)
94058	Safe Boating Weather Tips (Revised July 1998)
94059	River and Flood Program (Hydrologic Services Program)
94061	NOAA Weather Radio Frequency Pamphlet (Revised 3/00)
96051	National Centers for Environmental Prediction
96052	Key to New International Aerodrome Forecast (TAF) and New Aviation Routine Weather Report (METAR)(Card)
96054	MSC-1, Eastport, ME, to Montauk Point, NY
96057	MSC-4, Cape Hatteras, NC, to Savannah, GA
96058	MSC-5, Savannah, GA, to Apalachicola, FL
96061	MSC-8, Mexican Border to Point Conception, CA
96062	MSC-9, Point Conception, CA, to Point St. George, CA
99060	MSC-10, Point St. George, CA, to Canadian Border
96064	MSC-11/12, Great Lakes
96065	MSC-13, Hawaiian Waters
96066	MSC-14, Puerto Rico and Virgin Islands
99064	MSC-15, Alaska Waters
96068	MSC-16, Guam and the Northern Mariana Islands
96070	NOAA Weather Radio Brochure
96071	Atlantic Hurricane Tracking Map—8-1/2" x 11"
96072	Atlantic Hurricane Tracking Map—17" x 22" (Out of print)
96073	Pacific Hurricane Tracking Map—12" x 24"
96074E	The Hidden Danger—Low Water Crossing (English)
96074S	The Hidden Danger—Low Water Crossing (Spanish)
96076	ASOS Guide for Pilots (Booklet)
97050	Basic Spotters' Field Guide
98053	A Mariner's Guide to Marine Weather Services—Great Lakes
98054	A Mariner's Guide to Marine Weather Services—Coastal, Offshore and High Seas
99050	Thunderstorms, Tornadoes, Lightning
20050	Saving Lives With an All-Hazards Warning Network
20051a	NWR Decal (3" x 3")
20051b	NWR Decal (5" x 5")
20051c	NWR Decal (7" x 7")
0002	NOAA Brochure

+ Available in Braille. Contact your local NWS Office, Region, or Weather Service Headquarters.

* Available from your local Red Cross chapter only.

Marine Weather Service Charts (MSCs) can be found on the Web at:
www.nws.noaa.gov/om/marine/pub.htm

You can download most of these publications from:
www.nws.noaa.gov/om/nwspub

You can obtain a single copy by writing:
NWS/NOAA
1325 East-West Highway, Rm #14370
Silver Spring, MD 20910

National Weather Service
Slide Sets and Videotapes

The NWS slide sets and videotapes can be purchased from the National Audiovisual Center (NAC) at the address below.

National Technical Information Service
National Audiovisual Center (NAC)
5285 Port Royal Road, Rm. 1008
Springfield, VA 22161

Sales Desk -1-800-553-NTIS (6847) or 703-605-6000
Customer Inquiry: 703-605-6050
Fax: 703-605-6900 or 1-888-584-8332
Web site: www.ntis.gov
Handling fee: $4 per order.

The NWS slide sets and presenter's guides available from NAC are:

NAME	STOCK NO.	COST
Winter Storms...The Deceptive Killers	AVA19250.SS00	$100
Tornadoes...Nature's Most Violent Storms	AVA19540.SS00	$95
Thunderstorms and Lightning...The Underrated Killers	AVA19778.SS00	$105
Hurricane Hugo	AVA18529.SS00	$130
Hurricane Andrew	AVA19393.SS00	$95
Advanced Met. Spotter Training Slides	AVA17568.SS00	$155
Concepts of Severe Storm Spotting	AVA19930.SS00	$110
Flash Floods and Floods...The Awesome Power	AVA19997.SS00	$120

The NWS videotapes available from NAC are:

"Terrible Tuesday," 1/2" VHS/23 minutes/color/1984	AVA11945.VNB1	$50
"Hurricane," 1/2" VHS/28 minutes/color/1985	AVA12440.VNB1	$50
"The Awesome Power," 1/2" VHS/17 minutes/color/1988	AVA17096.VNB1	$50

Most of these videotapes and slide sets can be borrowed for presentations or school talks from Weather Service Headquarters (address below). For availability of these audiovisual materials, please contact Linda Kremkau, Customer Service, WSH, at 301-713-0090 x118.

National Weather Service, NOAA
1325 East-West Highway, Rm. 14370
Silver Spring, Maryland 20910

Other videotapes available from Customer Service are:

"Moving Water: Adventure of Danger" 1/2" VHS/18 minutes/NWS Office of Hydrology/1999
"The Hidden Danger—Low Water Crossings," 1/2" VHS/8 minutes/NWS Office of Hydrology/1996/ ***Now also in Spanish***
"StormWatch," 1/2" VHS/30 minutes/copyright by TESSA/1995
"Surviving the Cold," 1/2" VHS/16 minutes/American Red Cross Video Network/1989
"Minneapolis Tornado," 1/2" VHS/12 minutes/copyright by KARE-TV/1986

Those interested in using portions of the NWS videotapes should contact our NOAA Video Studio at 301-713-1479.

Attachment A—Update on OM's WSOM Chapters

A-10 **Station Management**
Awaiting Union review.

A-40 **Service Change Process**
Chapter effective Dec. 28, 1999.

A-63 **Service Evaluation**
Chapter effective Dec. 21, 1999.

A-99 **General Weather Service Definitions**
OML issued September 2, 1999.

B-16 **Marine Reporting Station**
No updates before 2000.

B-19 **Fire Weather Stations**
Will be updated and consolidated with D-06 in 2000.

B-30 **Voluntary Observing Ship Program**
Due in 2001.

B-90 **Special Warning Program Observations**
To be updated in 2000.

C-11 **Zone and Local Forecasts and Appendix A** (maps)
Due December 2000.

C-40 **Severe Local Storm Watches, Warnings and Statements**
To be updated coinciding with Watch by County in 2001.

C-41 **Tropical Cyclone Program**
In field for review.

C-42 **Combined Winter Storm and Non Precip Hazards**

C-44 OML under development; due in 2000.

C-43 **Coastal Flood Program**
Due in 2000.

C-45 **Meteorological Discussions and Forecast Coordination**
An OML to C-45 defining the state liaison office policy is being drafted for field review in 2000.

C-47 **County Warning Areas, Appendix A**
To be updated in 2000.

C-49 **Warning Coordination and Hazard Awareness**
Signed in January.

C-50 **Customer and Partner Outreach**
Chapter effective January 14, 2000.

C-60 **Radio/TV Dissemination**;

C-61 **Telephone Dissemination**;

C-62 **Newspaper Dissemination**;
Will begin updating and probably consolidating in 2000.

C-63 **NOAA Weather Wire Service (NWWS)**
Update due 2000.

C-64 **NOAA Weather Radio Program**
Chapter effective December 21, 1998.

C-66 **Dissemination of Public Warnings**
Will probably be consolidated with C-67 in 2000.

C-67 **News Wire Dissemination**
Will probably be consolidated with C-66 in 2000.

C-75 **National Verification Program**
To be finalized April 2000.

D-06 **Fire Weather Services**
Will be updated in 2000 and consolidated with B-19, D-06, OML: Duties of IR Mets Requiring Exposure to Hazardous Situations.

D-07 **Marine Weather Services**
To be updated in 2000.

D-20 **Aviation Area Forecasts**
OMLs effective November 5, 1998 (backup) and December 14, 1998 (new VOR chart). Will begin updating chapter possibly combining with D-35 in 2001. New WMO headers/AFOS PILs for new areas being developed.

D-22 **Domestic SIGMET**
OMLs effective November 5, 1998 (backup) and December 14, 1998 (new VOR chart). Currently working on updating chapter combining D-22 and D-38.

D-23 **Special Aviation Forecasts and Events**

D-24 **Wind and Temperature Aloft Forecasts**
Final draft of new chapter in coordination/review awaiting FAA approval.

D-25 **Air Traffic Operations Support**
OML effective December 14, 1998 (new VOR chart).

D-30 **Transcribed Weather Broadcast Text Products**
OML effective Nov. 5, 1998.

D-31 **Aviation Terminal Forecasts**
Page changes effective Nov. 5, 1998.

D-35 **International Area Forecasts**
Should be combined with D-24; timing to be determined.

D-36 **International/Aviation Service Arrangements**
Should be combined with D-24; timing to be determined.

D-38 **International SIGMET**
Currently working on updating chapter combining D-22 and D-38. New WMO headers/AFOS PILs for new areas being developed.

D-51 **Marine Services for Coastal, Offshore and High Seas, Appendix B**
Changes effective Nov. 30, 1999.

D-52 **Marine Services for the Great Lakes**
OML effective Sept. 15, 1999.

D-80 **Familiarization Flights**
Under development.

D-82 **Training Program for Pilot Weather Briefers**
Regional reviews of proposed revision received December 1998. Waiting for decision and funding commitments to implement alternate proposal to complete NWS PWB evaluations/certification responsibilities.

D-90 **Support for Accident Investigation and Litigation**
Transmittal Memo issued July 15, 1997, #97-8.

D-91 **Aviation Liaison and User Support Program**
Preliminary work to update, adjust and reassign the contents of these chapters has been completed. Awaiting resources to complete the job.

F-42 ***Storm Data* and Related Reports**
An OML has been released to accommodate changes associated with Paradox II the new *Storm Data* software. Other minor changes also have been included.

F-60 **Tsunami Warning Service**
OML issued effective April 1998.

F-61 **Earthquake Reporting Program**
Chapter issued March 6, 1996.

J-02 **Significant Hydrometeorological Events, Post-Storm Data Acquisition, and Service Assessments**
Chapter issued Sept. 28, 1998.

J-05 **Backup Operations**
Draft to be issued May 2000.

J-08 **Nuclear Emergency Response**
Chapter update in 2000.

Attachment B–WCM/SOO Roster

WCM	SOO	SID	Location	Telephone

NWS Headquarters

John Ogren, National WCM Program Manager 301-713-0090 x140
Eli Jacks, National SOO Program Manager 301-713-1970 x188

Eastern Region

Rick Watling, Regional (Focal) WCM Program Manager 631-244-0123
Kenneth Johnson, Regional SOO Program Manager 631-244-0136
Solomon Summer, HSD Chief 631-244-0111

Dick Westergard	Warren Snyder	ALY	Albany, NY	518-435-9568
Barbara Watson	Steve Zubrick	LWX	Baltimore, MD/Washington, DC	703-260-0107
Dave Nicosia	Jeff Waldstreicher	BGM	Binghamton, NY	607-770-9531
Glenn Field	James Lee	BOX	Boston, MA	508-823-1900
Stan Levine	Ed Mahoney	BUF	Buffalo, NY	716-565-0204
Stephen Hogan	Paul Sisson	BTV	Burlington, VT	802-862-2475
Hendricus Lulofs	Dan Cobb	CAR	Caribou, ME	207-496-8931
Tom Dunham	Rich Grumm	CTP	Central Pennsylvania, PA	814-234-9412
Jerry Harrison	Steven Brueske	CHS	Charleston, SC	803-744-3207
Dan Bartholf	Dan Luna	RLX	Charleston, WV	304-746-0173
Mary Jo Parker	John DiStefano	ILN	Cincinnati, OH	937-383-0031
Gary Garnet	Robert LaPlante	CLE	Cleveland, OH	216-265-2370
Steve Naglic	Michael Cammarata	CAE	Columbia, SC	803-765-5501
Vince DiCarlo	Larry Lee	GSP	Greenville-Spartanburg, SC	864-848-1332
Tom Kriehn	Carin Goodall	MHX	Morehead City, NC	919-223-5122
Gary Conte	Jeff Tongue	OKX	New York City, NY	631-924-0037
Joe Miketta	Alan Cope	PHI	Philadelphia, PA	609-261-6600
Rich Kane	Josh Korotky	PBZ	Pittsburgh, PA	412-262-1591
John Jensenius	Joseph Fred Ronco	GYX	Portland, ME	207-688-3216
George Lemons	Kermit Keeter	RAH	Raleigh/Durham, NC	919-515-8209
Mike Emlaw	Steve Keighton	RNK	Roanoke, VA	540-552-0084
Bill Sammler	Hugh Cobb	AKQ	Wakefield, VA	757-899-4200
Tom Matheson	Reid Hawkins	ILM	Wilmington, NC	910-762-4289

Southern Region

Gary Woodall, Regional WCM Program Manager 817-978-2812 x106
Bernard Meisner, Regional SOO Program Manager..... 817-978-2671
Dave Morris, HSD Chief 817-978-2674

Keith Hayes	Deirdre Kann	ABQ	Albuquerque, NM	505-243-0702
Steve Drillette	Richard Wynne	AMA	Amarillo, TX	806-335-1121
Barry Gooden	Gary Beeley	FFC	Atlanta, GA	770-486-1333
Larry Eblen	Jim Ward	EWX	Austin/San Antonio, TX	830-629-0130
Brian Peters	Kevin Pence	BMX	Birmingham, AL	205-664-3010
Hector Guerrero	Shawn Bennett	BRO	Brownsville, TX	210-504-3354
Terry Huber	Andy Patrick	CRP	Corpus Christi, TX	512-289-0959
Jim Stefkovich	Mike Foster	FWD	Dallas/Fort Worth, TX	817-429-2631
John Fausett	Val MacBlain	EPZ	El Paso, TX	505-589-4088
Gene Hafele	Steve Allen	HGX	Houston/Galveston, TX	281-337-5074
James Butch	Alan Gerard	JAN	Jackson, MS	601-936-2189
Fred Johnson	Pat Welsh	JAX	Jacksonville, FL	904-741-4370
Howard Waldron	Steve Parker	MRX	Knoxville/Tri-Cities, TN	423-586-9040
Wayne Presnell	Jack Settelmaier	EYX	Key West, FL	305-295-1316
Roger Erickson	Felix Navejar	LCH	Lake Charles, LA	318-477-5285
John Robinson	George Wilken	LZK	Little Rock, AR	501-834-9102
Larry Vannozzi	Loren Phillips	LUB	Lubbock, TX	806-745-4260
Dennis Decker	Dave Sharp	MLB	Melbourne, FL	407-255-0212

WCM	SOO	SID	Location	Telephone
John White	Jerry Rigdon	MEG	Memphis, TN	901-544-0399
Jim Lushine	Jack Gross	MFL	Miami, FL	305-229-4522
George Mathews	Brian Francis	MAF	Midland/Odessa, TX	915-563-5006
Gary Beeler	Jeff Medlin	MOB	Mobile, AL	334-633-6443
Jerry Orchanian	Henry Steigerwalt	OHX	Nashville, TN	615-754-8506
Frank Revitte	Mike Koziara	LIX	New Orleans/Baton Rouge, LA	504-522-7330
Jim Purpura	Dave Andra	OUN	Oklahoma City, OK	405-366-6583
Buddy McIntyre	Greg Jackson	SJT	San Angelo, TX	915-944-9445
Rafael Mojica	Rachel Gross	SJU	San Juan, PR	787-253-4586
Bruce Burkman	Ken Falk	SHV	Shreveport, LA	318-631-3669
Bob Goree	Irv Watson	TAE	Tallahassee, FL	904-942-8999
Walt Zaleski	Charles Paxton	TBW	Tampa Bay Area, FL	813-645-2323
Steve Piltz	Steve Amburn	TSA	Tulsa, OK	918-832-4115

Central Region

Joe Sullivan, Regional WCM Program Manager				**816-426-3239 x703**
Preston Leftwich, Regional SOO Program Manager				**816-426-5672**
Ken King, HSD Chief				**816-426-3220**
George Marshall	Ken Harding	ABR	Aberdeen, SD	605-225-5547
Daniel Noah	Viggo Jensen	BIS	Bismarck, ND,	701-250-4224
John Griffith	David Copley	CYS	Cheyenne, WY	307-772-2468
Jim Allsopp	Ken Labas	LOT	Chicago, IL	815-834-0600
James Meyer	Ray Wolf	DVN	Davenport, IA	319-391-6729
Robert Glancy	Eric Thaler	BOU	Denver/Boulder, CO	303-361-0661
Jeffrey Johnson	Karl Jungbluth	DMX	Des Moines, IA,	515-270-4501
Darin Figurskey	Dick Wagenmaker	DTX	Detroit, MI	248-625-3309
Jeff Hutton	Steve Hunter	DDC	Dodge City, KS	316-227-7140
Carol Christenson	Gary Austin	DLH	Duluth, MN	218-729-0651
Jim Belles	Phillip Schumacher	FGF	Eastern North Dakota, ND	701-772-0720
Kevin Lynott	Llyle Barker	GLD	Goodland, KS	785-899-7119
James Pringle	Michael Meyers	GJT	Grand Junction, CO	970-243-7007
Mike Heathfield	*Vacant*	GRR	Grand Rapids, MI	616-956-5922
Jeff Last	Eugene Brusky	GRB	Green Bay, WI	920-494-5845
Steve Kisner	Rick Ewald	GID	Hastings, NE	402-462-2127
David Tucek	John Kwiatkowski	IND	Indianapolis, IN	317-856-0361
Jim Keeney	Michael Lewis	JKL	Jackson, KY	606-666-4856
Bill Bunting	Peter Browning	EAX	Kansas City/Pleasant Hill, MO	816-540-5147
Todd Shea	Dan Baumgardt	ARX	LaCrosse, WI	608-784-8275
Rod Palmer	Jeff Hedges	ILX	Lincoln, IL	217-732-4029
Norman Reitmeyer	Ted Funk	LMK	Louisville, KY	502-969-8842
Jack Pellett	Ed Fenelon	MQT	Marquette, MI	906-475-5782
Rusty Kapela	John Eise	MKX	Milwaukee/Sullivan, WI	414-297-3243
Todd Krause	Richard Naistat	MPX	Minneapolis, MN	612-361-6670
Gene Bowman	*Vacant*	LBF	North Platte, NE	308-532-4936
Brian Hirsch	Bruce Smith	APX	NC Lower Michigan	517-731-3384
Jane Hollingsworth	Julie Adolphson	IWX	Northern Indiana	219-834-5178
Brian Smith	Steve Byrd	OAX	Omaha, NE	402-359-2394
Ricky Shanklin	Pat Spoden	PAH	Paducah, KY	502-744-6440
Tom Magnuson	Paul Wolyn	PUB	Pueblo, CO	719-948-9429
Susan Sanders	Brian Klimowski	UNR	Rapid City, SD	605-341-9271
Donald Noll	Derek Frey	RIW	Riverton, WY	307-857-3898
Todd Heitkamp	Ron Holmes	FSD	Sioux Falls, SD	605-330-4247
Steve Runnels	David Gaede	SGF	Springfield, MO	417-863-1456
Jim Kramper	Ron Przybylinski	LSX	St. Louis, MO	636-447-1876
Mike Akulow	George Phillips	TOP	Topeka, KS	785-232-1493
Chance Hayes	Peter Wolf	ICT	Wichita, KS	316-942-8483

Western Region

Tom Ainsworth, Regional WCM Program Manager 801-524-4000
Andy Edman, Regional SOO Program Manager 801-524-5131
Bob Tibi, HSD Chief 801-524-5137

Stephen Kuhl	Keith Meier	BYZ	Billings, MT	406-652-0851
Carl Weinbrecht	David Billingsley	BOI	Boise, ID	208-334-9860
Jim Dudley	Steve Apfel	LKN	Elko, NV	775-738-3018
John Lovegrove	Mel Nordquist	EKA	Eureka, CA	707-443-6484
Tyree Wilde	Michael Staudenmaier	FGZ	Flagstaff, AZ	520-556-9161
Kimberly Bailey	Eugene Petrescu	GGW	Glasgow, MT	406-228-2850
Rick Dittman	David Bernhardt	TFX	Great Falls, MT	406-453-2081
Ron McQueen	Kim Runk	VEF	Las Vegas, NV	702-263-9744
Tim McClung	Dave Danielson	LOX	Los Angeles, CA	805-988-6610
Jim Reynolds	Dennis Gettman	MFR	Medford, OR	541-773-1067
Peter Felsch	Tim Barker	MSO	Missoula, MT	406-329-4841
Dennis Hull	Jon Mittelstadt	PDT	Pendleton, OR	541-276-7832
David Runyun	Doug Green	PSR	Phoenix, AZ	602-379-4611
Vern Preston	Dean Hazen	PIH	Pocatello/Idaho Falls, ID	208-233-0834
Dan Keeton	Bill Schneider	PQR	Portland, OR	503-261-9247
Roger Lamoni	Mary Cairns	REV	Reno, NV	775-673-8107
Kathy Hoxsie	Scott Cunningham	STO	Sacramento, CA	916-979-3041
Dave Toronto	Larry Dunn	SLC	Salt Lake City, UT	801-524-5113
Ed Clark	Ivory Small	SGX	San Diego, CA	858-297-2107
Charles Morrill	Dr. Warren Blier	MTR	San Francisco Bay Area, CA	831-656-1725
Dan Gudgel	Larry Greiss	HNX	San Joaquin Valley	559-584-0583
Ted Buehner	Brad Colman	SEW	Seattle/Tacoma, WA	206-526-6095
Ken Holmes	Ron Miller	OTX	Spokane, WA	509-244-0110
Paul Flatt	David Bright	TWC	Tucson, AZ	520-670-5156

Alaska Region

Greg Matzen, Regional WCM Program Manager 907-271-3507
Gary Hufford, Regional SOO Program Manager 907-271-3886
Jerry Nibler, HSD, HIC Chief 907-266-5151

David Goldstein	Carven Scott	AFC	Anchorage	907-266-5117
John Lingaas	Kraig Gilkey	AFG	Fairbanks	907-458-3712
Robert Kanan	Carl Dierking	AJK	Juneau	907-790-6803
Bruce Turner	*(no SOO position)*		Palmer (ATWC)	907-745-4212

Pacific Region

Mark Jackson, Regional WCM/SOO Program Manager 808-532-6413
Kevin Kodama, Regional Hydrologist 808-973-5270

Thomas Heffner	Paul Jendrowski	HFO	Honolulu, HI	808-973-5275
Tom Tarlton	Frank H. Wells	GUA	Tiyan, Guam	671-472-7423
Akapo Akapo		ASO	Pago Pago (Focal)	684-699-9130

NCDC

Stuart Hinson ..... Asheville, NC 828-271-4437

NCEP

Stacy Stewart	Dr. Jiann-Gwo Jiing	TPC	Miami, FL	305-229-4463
Vacant	Peter Manousos	HPC	Camp Springs, MD	301-763-8000x7307
Vacant	James Partain	MPC	Camp Spring, MD	301-763-8097
Ron Olson	Fred Mosher	AWC	Kansas City, MO	816-584-7237
Dan McCarthy	Bob Johns	SPC	Norman, OK	405-579-0700